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STATE OF ILLINOIS

DEPARTMENT OF NUCLEAR SAFETY

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GovernorThomas W. Ortziger
Director

December 18, 2001

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USNRC

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Secretary
U.S. Nuclear Regulatory Commission
Washington D.C. 20555-0001
Attention: Rulemakings and Adjudications StaffOFFICE OF THE SECRETARY
RULEMAKINGS AND
ADJUDICATIONS STAFFRe: Entombment Options for Power Reactors; Advance notice of proposed
rulemaking; *Federal Register*: October 16, 2001

Dear Secretary:

The NRC published an advance notice of proposed rulemaking on entombment options for power reactors on October 16, 2001, and invited early input from affected parties and the public on the issues surrounding the feasibility of entombment. The same document was provided to agreement states for comments on March 7, 2001. The Illinois Department of Nuclear Safety submitted comments and provided responses to questions posed by the NRC. It does not appear that NRC gave any consideration whatsoever to the Department's comments and responses. It should be obvious that reactor decommissioning is of great interest to the state of Illinois if one considers there are fourteen power reactors located in the state. Illinois' comments regarding entombment as a decommissioning method are again provided along with responses to the specific questions posed.

As proposed in the ANPR notice, entombment as a reactor decommissioning alternative is problematic. We will resist its implementation and urge its prohibition for numerous reasons including the following:

Lack of Illinois control in decision-making process - Nuclear power stations are licensed by the Nuclear Regulatory Commission. Under the license termination rule, the NRC approves the decommissioning method proposed by the licensee including the amount of residual radioactivity that would remain at the site. The entombment decommissioning method leaves a significant amount of "residual



Template = SECY-067

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Secretary, USNRC

Page 2

December 18, 2001

radioactivity." Illinois' standing in the decision-making process as that of an outside party with no control over the final outcome is unacceptable in the context of the possible outcomes of such decisions.

Long-term restricted land use - Since the site will contain quantities of radioactive material that do not allow the site to be released for unrestricted use, there will always be land use restrictions imposed on the site. These restrictions may be eliminated after the many centuries required for radioactive decay to occur. However, by the time that happens, the structural integrity of the containment building may have degraded such that it represents a safety hazard. Also, having these containment structures remain on the Illinois landscape and horizon in perpetuity is an unacceptable land use.

Requires a custodial agent - Since the site will have restrictions associated with its future land use, the decommissioning plan needs to identify an agent to monitor and maintain the site following license termination. For a closed, licensed low-level radioactive waste (LLRW) disposal facility that is expected to be the state or federal government. For an entombed reactor, it is suggested that the custodial agent could be a non-governmental organization. The logic of allowing this is inconsistent with the FEIS for 10 CFR Part 61. The NRC until now has assumed that states could only be relied on to provide institutional control for 100 years. It is inconsistent to now assume that a non-governmental entity could provide institutional control for the centuries required before the site could be released for unrestricted use. It is also presumptuous to assume that the state would be willing to assume this task and long-term liability. Illinois is not willing to assume such a burden for what are LLRW sites forced on the state by NRC.

Inconsistent waste management policy - Contamination left behind at a decommissioned site is generally considered "residual contamination". This term implies that the contamination is minimal and removal would have been cost prohibitive. Leaving behind the reactor pressure vessel, steam generators, pumps, piping and turbines cannot rationally be considered residual contamination. It is clearly disposal of radioactive waste. Implying that it is not is arrogant elitist semantic manipulation.

Secretary, USNRC

Page 3

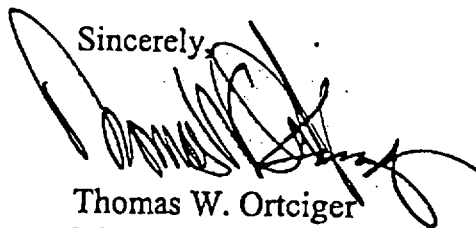
December 18, 2001

The federal government has established policies regarding the disposal of LLRW. States are required by the federal Low-Level Radioactive Waste Policy Act of 1980 and the Amendments Act of 1985 to provide for the disposal of LLRW generated within their states. States were encouraged to form regional compacts to limit the number of disposal facilities created. As an incentive to form compacts, compacts were given certain rights to limit the import or export of LLRW into or from their region as well as to establish policies regarding the management of LLRW within the region. Allowing the NRC to determine where LLRW will be disposed in a state or region is inconsistent with this waste management framework and unacceptable to the State of Illinois. Illinois, as an Agreement State, has regulatory authority over the disposal of LLRW in Illinois. NRC has no authority in this regard in Illinois, yet as described, reactor entombment clearly constitutes disposal of LLRW.

It is inappropriate for the NRC to be licensing decommissioning activities at a nuclear power station in an Agreement State especially if the result is to dispose of LLRW at the site under the guise of an entombment policy. It is understandable that the NRC licenses the plants while there is fuel in the reactor and the potential for criticality exists. However, once the fuel is removed, the Agreement States should license the decommissioning activities. The NRC has little if any, accountability to the citizens of Illinois. It should not be making the long-term land use decisions made during decommissioning. The state of Illinois should be making those decisions.

Attached are responses to the specific questions posed in the notice. Questions you may have regarding this letter may be directed to me at 217-785-9868.

Sincerely,



Thomas W. Ortciger
Director

TWO:bac
Attachment

Responses to the Specific Questions Asked in ANPR for Reactor Entombment as a Decommissioning Method

- 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 referenced regulation states:

“(3) Decommissioning will be completed within 60 years of permanent cessation of operations. Completion of decommissioning beyond 60 years will be approved by the Commission only when necessary to protect public health and safety. Factors that will be considered by the Commission in evaluating an alternative that provides for completion of decommissioning beyond 60 years of permanent cessation of operations include unavailability of waste disposal capacity and other site-specific factors affecting the licensee's capability to carry out decommissioning, including presence of other nuclear facilities at the site.”

If entombment were a viable decommissioning option, the regulation can be interpreted as stating that the entombment activities must be completed within 60 years of the permanent cessation of operations. The waste would obviously remain in perpetuity.

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

It appears that the requirement in Subpart E to reduce residual radioactivity to ALARA levels would intuitively prohibit the use of entombment as a reactor-decommissioning alternative. Subpart E is deficient for use in licensing any decommissioning activity in that it does not specify the length of time period needed for compliance with the dose limits. While placing all the contaminated material in the containment structure may meet the dose limits in the near-term, it may not in the long-term. Given that the waste material will never be removed, the integrity of the containment structure will only degrade over time thereby allowing the increased potential for release of radioactive material to the environment.

- 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?

The ANPR was not specific, nor is Subpart E, as to what form the "legally enforceable institutional controls" would take. Given the uncertainty of those agreements and the potential that the regulation could allow for a responsible party that is not a governmental agency, some means to regulate the institutional control period is required. Without a license and some regulatory authority to enforce the license conditions, there is no reliable mechanism to ensure the provisions of the "legally enforceable institutional controls" are being complied with. However, in our view this means NRC intends to license LLRW disposal facilities in Illinois, which is unacceptable.

- A.4.** A new part is being considered in the regulations to establish performance objectives and requirements for licensing an entombment 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 entombment 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.

The regulatory framework for terminating a facility's license should be consistent whether the decommissioning activity is taking place under the license termination rule or an entombment approach. Both methods must be equally protective of the public health and safety. Dose criteria for reactor entombment should be just as protective as the regulations governing the disposal of LLRW. Additional requirements for preventing excessive doses due to inadvertent intrusion should be included (which may preclude the entombment of GTCC wastes).

- 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?

The entombment option should not be available to power reactors. Nor should it be available to non-reactor licensees. To do so would result in the unfettered proliferation of radioactively contaminated sites. This is clearly contrary to the intent of Congress in its adoption of the Low-Level Radioactive Waste Policy Act which encouraged the formation of regional compacts to limit the number of LLRW disposal facilities.

- 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?

While entombment may be able to provide for the public health and safety, it does nothing to provide for the public confidence and trust. Anytime land is sacrificed because of expediency, the public loses confidence in the regulatory agencies that allow that to happen. Rather than having up to 14 entombed reactors in the state of Illinois, it makes much greater sense to have one LLRW disposal facility that is sited, designed, operated and closed with one purpose in mind, that being safely isolating the waste from the environment. Allowing wastes to be disposed (or entombed) in a location that doesn't meet the same siting criteria as a disposal facility is, unacceptable, logically inconsistent, and destroys the public confidence in the regulatory framework.

- 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?

Engineered barriers should be given the same credit as the engineered barriers in a LLRW disposal facility. The projected longevity of those engineered barriers should take into consideration the increased degradation caused by continual exposure to the atmosphere.

- 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?

Absolutely not. The NRC determined in developing the Part 61 regulations that GTCC waste was not suitable for near-surface disposal. Any potential incorporation of GTCC in an entombed reactor or a LLRW disposal facility should be considered on a case-by-case basis rather than a wholesale provision in the regulations.

- D.1.** Power reactor licensees are exclusively regulated by the NRC (under 10 CFR Part 50), even in Agreement States. The NRC consults with stakeholders, including Agreement and non-Agreement States, about regulatory actions under consideration that may impact stakeholders. 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?

It is not clear whether NRC has fully thought through the enormous ramifications of its proposal. NRC's query of whether Agreement States should have any more than a consultative role in the creation of LLRW Disposal sites in 24 Agreement States throughout the country indicates that it has not.

NRC should be mindful that the Atomic Energy Act's mandate that NRC retain authority and responsibility with respect to regulation of the construction and operation of nuclear power plants does not include disposal of LLRW generated at nuclear power plants. 42 USCA 2021 (c)(1). The overwhelming preponderance of the LLRW generated in the United States (by both volume and radioactivity) is, of course, generated at nuclear power plants and is disposed of at sites licensed by Agreement States. Furthermore, in an Agreement State, it is currently the Agreement State, not the NRC that has jurisdiction over disposal of LLRW at reactor sites. Reasserting NRC's Authority for Approving Onsite Low-Level Waste Disposal in Agreement States, Withdrawal of Proposed Rule. 61 Fed. Reg. 26852 (1996).

It is beneath the NRC to engage in the semantical charade of denominating long-term isolation of reactor waste as anything other than disposal. The Agreement States' authority to license disposal of LLRW at reactor sites includes authority over entombment of LLRW. Any attempt by the NRC to repeal Agreement State authority under the pretext of merely licensing the decommissioning of commercial nuclear power reactors is virtually guaranteed to be vehemently imposed by Agreement States. If it is the NRC's objective to assert permanent federal control and responsibility over reactor sites, using those sites as a multitude of sacrifice areas throughout the United States, IDNS submits that NRC should make its proposal to Congress for a full and vigorous national debate. It is inconceivable that an entombed reactor could be released for unrestricted use. Who would NRC have manage the disposal sites, the National Park Service?

- D.2.** Under 10 CFR Part 20, Subpart E, the entombment contains material having residual radioactivity and is suitable for license termination if the dose criteria are met. However, under other statutes, such as the LLW Policy Act, the material might be considered to be low level waste. What issues exist for entombment in a State where existing State legislation prohibits LLRW disposal?

There are currently ten interstate compacts adopted under authority of the Low-Level Radioactive Waste Policy Amendments Act. The compacts have been approved by Congress, and their provisions have the force of federal law. The compacts cannot be amended or repealed by administrative rule of the NRC.

Illinois and Kentucky are the party states to the Central Midwest Interstate Low-Level Radioactive Waste Compact (CMC). Several provisions of the CMC would prohibit NRC's licensing of low-level radioactive disposal under the guise of entombment at power reactor sites in Illinois.

First, Illinois and Kentucky created the compact for several purposes. Among the purposes were to limit the number of facilities required to manage LLRW generated in the region effectively and efficiently and to ensure the ecological and economical management of LLRW, including the prohibition of shallow-land burial of waste. Disposal of LLRW at 14 entombed reactors throughout the state would neither limit the number of disposal facilities nor avoid shallow-land burial of waste.

Second, an entombed reactor site would not qualify as a "regional facility" because an entombed reactor site would not have been created by a party state pursuant to designation of that state as a host state by the CMC Commission. Entombment would, however, clearly fall within the CMC's definition of disposal, which is "isolation of waste from the biosphere in a permanent facility designed for that purpose." Disposal of LLRW at a facility other than a regional facility without approval of the CMC Commission is a violation of the compact.

Third, each party state to the compact is required to prescribe and enforce penalties for violations of any provisions of the compact. To fulfill this responsibility, Illinois enacted the Radioactive Waste Compact Enforcement Act. Under that Act, disposal of LLRW at a facility other than a regional disposal facility without approval of the CMC Commission is subject to a fine of \$100,000 per occurrence. A person who intentionally engages in such disposal is subject to a class 4 felony.

Fourth, as the host state for the CMC region, Illinois is responsible for developing a regional disposal facility for all generators in the region, not just nuclear power plants. Entombment of power reactor waste may satisfy the needs of the power plants but it does nothing to provide disposal capacity for non-reactor generators, including all of the generators in the Commonwealth of Kentucky. Development of a disposal site without funding for the waste from the nuclear power plants is economically impossible.

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

The state of Illinois has conducted economic modeling of a proposed LLRW disposal facility to project disposal costs and determine the most economical timeframe for developing the regional disposal facility. We determined that it is

not economical to develop a regional facility until the nuclear power stations are decommissioned. This is when the waste volumes will increase and economically support the development of the facility. If these decommissioning waste streams were entombed rather than shipped for disposal, it may never be economical to develop a disposal facility. This could drastically impact all LLRW generators should there be no other disposal options available.

- 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 46517), and in NRC's Management Directive 5.9, "Adequacy and Compatibility of Agreement State Programs," should be assigned?

Compatibility level C should be assigned.

- 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?

The Commission should take this opportunity to eliminate the entombment option for facility decommissioning. Disposing of waste in the containment structure at the nuclear power station does not make sense from a public policy standpoint. Allowing it would only increase the number of radioactively contaminated sites across the country. It is better public policy to limit the number of disposal facilities.

In addition, the nuclear power generators are collecting funds to cover the decommissioning of their stations. The funding level is based on decommissioning for unrestricted release. Entombing the waste will be significantly cheaper. What is the NRC proposing to do with the excess decommissioning funds? Would they be returned to the ratepayers who paid them in the first place, or would they represent a sudden economic windfall for the utility? It appears this rulemaking is driven by economics rather than sound public policy.