



State of Maine
Senate Chamber
Augusta, Maine 04333

November 16, 1983

Mr. Nunzio Palladino, Chair
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Dear Mr. Palladino:

Maine's Low-level Radioactive Waste Siting Commission is currently evaluating options for Maine's future method of dealing with its commercial low-level radioactive waste.

Since over 90% of our waste is generated by our single nuclear power plant, we are considering as one option the possibility of on-site storage of the low-level waste for the life of the nuclear power plant.

1. Would an amendment to Maine Yankee's license become necessary if it were to build such a long-term storage facility?
2. Would long-term storage be deemed suitable management for our commercial waste?

If Maine Yankee were allowed to store its low-level wastes on-site until decommissioning, perhaps the waste generated from operating the plant could be transported to a shallow-land burial facility at the same time as the dismantled nuclear power plant.

3. Will N.R.C. allow such a scenario?

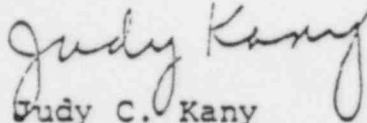
Another possibility would be to entomb the stored low-level waste along with the decommissioned nuclear power plant.

4. Will the N.R.C. allow entombment as an option for "permanent" disposal of a nuclear power plant and its low-level waste?

5. If Maine prefers the on-site storage-for-the-life-of-the-facility option, can the state require Maine Yankee to build such a facility?
Can a state force a nuclear power plant to store other generators' wastes for any length of time? For health and safety reasons? For economic reasons?

We would greatly appreciate a written response to our questions. Maine's Low-level Radioactive Waste Siting Commission is an advisory commission consisting of executive branch, legislative branch and licensee members. We are very much interested in the option of above-ground storage and are encouraged at the viability of this option after seeing your responses to Governor Earl of Wisconsin.

Sincerely,



Judy C. Kany
State Senator
Chair, Maine's Low-level
Waste Siting Commission

elk

cc: Dr. Faith Brennerman
Philip Ahrens, Attorney General's office
Commissioner Henry Warren, Department of Environmental Protection
George Seel, Department of Environmental Protection
Haven Whiteside, Legislative Assistant

Question 4: When will the regulations being developed for financial responsibility for low-level waste sites be completed? How will these regulations be applied to sites now operating or sites in the licensing process?

Answer.

There are two provisions under Section 151 of the Nuclear Waste Policy Act (NWPA) relating to financial responsibility. Section 151(a)(1) relates to financial assurances for the decontamination, decommissioning, and closure of low-level waste sites. This statutory requirement is contained in our 10 CFR Section 61.62 regulation for low-level waste disposal that became effective on December 27, 1983.

Section 151(a)(2) of NWPA provides that if NRC determines that long-term post-closure maintenance, monitoring, or both will be necessary at a low-level waste site following license termination, we must ensure before termination of the license that the licensee has made the necessary financial arrangements for this maintenance and/or monitoring by the person with title and custody for the site after license termination. Given our expected level of resources and program priorities and responsibilities, we expect to have these financial responsibility regulations in place in the next two to three years.

We expect that, for those low-level waste disposal sites that are operating or under license review at the time the regulations take effect, these financial responsibility requirements will be applied on a case-by-case basis and implemented either through terms and conditions of the licenses during their renewal (the term of these licenses is five years), or by orders issued by the Commission or the affected Agreement State.

Question 5: What is the front-end, operational, closure, and decommissioning cost for a low-level waste burial ground? What volume of waste is required to finance a low-level waste disposal operation which can meet all licensing and safety requirements and long-term financial responsibilities?

Answer.

Costs for siting, constructing, operating, and closing a low-level waste disposal facility, as well as costs for long-term care of the facility, are influenced by a number of factors. These include the disposal site environment, the disposal facility size, the facility design and method of operation, the type and volume of waste accepted, and economic and institutional considerations (e.g., whether the site operator is a governmental organization or a private firm operating on a profit basis.) Thus, it is not possible to determine a single cost value for a low-level waste disposal facility. As part of an analysis in the Final Environmental Impact Statement on the Part 61 regulation, NRC examined the costs associated with siting, constructing, operating, and closing a large (up to 20,000 m³ of waste per year) disposal site. This analysis was principally directed at the relative difference in costs associated with alternative regulatory requirements, rather than absolute magnitude of the costs. Such costs would depend upon the factors discussed above. We believe DOE has lead federal responsibility for this kind of support analysis for low-level waste disposal costs.

In regard to the second part of your question, the volume of the waste accepted for disposal at a particular facility would directly affect the disposal charges that would be levied by a site operator to a site customer. There may be a point at which the volume of waste projected to be generated and disposed at a specific regional site may not be sufficient to cover all operating costs unless the operators charge high fees to customers for use of the site. We have conducted no specific analysis to determine what this minimum volume might be, but expect that it would vary significantly depending on specific site and institutional factors. Each facility licensed under Part 61 or equivalent Agreement State regulations must comply with the regulations and licenses issued for operation, irrespective of the volume of waste accepted at the facility.

Question 6: What is the applicability of regulations, developed pursuant to the Resource Conservation and Recovery Act (RCRA) for disposal of toxic wastes, to wastes regulated by NRC under the Atomic Energy Act (AEA)? What radioactively contaminated wastes covered by RCRA regulation are not covered under the AEA? Please describe when a generator or waste disposal facility operator or other agent responsible for low-level radioactive waste would be subject to either RCRA or AEA, or both.

Answer.

Source, special nuclear, or byproduct material as defined by the Atomic Energy Act of 1954 are expressly excluded from the meaning of solid waste, and thus hazardous waste, under the Resource Conservation and Recovery Act. Nothing in RCRA applies to any activity or substance subject to the Atomic Energy Act except to the extent that RCRA regulations are not inconsistent with the requirements of the Atomic Energy Act. Thus, if RCRA regulations are not inconsistent with Commission regulations, RCRA regulations may apply to hazardous wastes mixed with source, special nuclear or byproduct material and disposed of in a low level radioactive waste disposal site. Since naturally occurring and accelerator produced radioactive material is not covered by the Atomic Energy Act (it is not source, special nuclear or byproduct material) it may be subject to regulation under RCRA if it qualifies as a hazardous waste.

A waste generator may be covered by both RCRA and the Atomic Energy Act if it generates both radioactive and non-radioactive wastes in its operations. Wastes that are source, special nuclear or byproduct material are regulated under the Atomic Energy Act and other radioactive and chemically hazardous wastes are regulated under RCRA. There is uncertainty in the regulatory structure for wastes which are mixtures of hazardous wastes under RCRA and source, special nuclear and byproduct material. Very little low-level radioactive waste falls into this category. The response to Question 9 provides additional background.

Question 7: What authority do states have to regulate disposal of radioactively contaminated toxic waste under RCRA? To what extent, and in what manner, is this authority consistent with or in conflict with state authority to regulate radioactive waste disposal under the Atomic Energy Act?

Answer.

The states may regulate radioactively contaminated hazardous waste under RCRA to the same extent that EPA could regulate if the state hazardous waste program is approved by EPA. The same conflict between RCRA and Atomic Energy Act requirements that is possible if EPA regulates radioactive hazardous waste is possible when the states regulate such waste under an EPA-approved hazardous waste program. (See response to Question 9.)

Question 8: Has the NRC entered into negotiations with EPA regarding resolution of any conflicts or overlaps in regulatory authority under RCRA and the AEA? What is the status of any such negotiations?

Answer.

NRC and EPA have been involved in discussions to resolve the potential overlap in their regulatory authorities since the summer of 1982. As a result of these discussions, EPA staff prepared a draft memorandum of understanding (MOU). NRC staff reviewed it, and a revised MOU is currently under internal review at both agencies.

From the beginning, the draft MOU has proposed that the wastes disposed of at licensed commercial low-level waste sites would continue to be regulated only under the Atomic Energy Act by NRC or Agreement States. From our most recent discussions with EPA, however, we are uncertain whether this approach will be acceptable to EPA. There appear to be basic issues arising from differences in regulatory requirements (as discussed in our answer to Question 9).

In hopes of working out a procedural agreement, NRC staff has been engaged in ongoing discussions with EPA concerning the application of RCRA requirements in the implementation of the final EPA standard for uranium mill tailings regulation.

NRC staff also attempted to negotiate a memorandum of understanding with EPA to clarify each agency's responsibility for the cleanup of sites that were contaminated either before enactment of the Atomic Energy Act, or in the course of licensed operations under previous rules. The negotiations have been discontinued at EPA's request.

Based upon a January 16, 1984 request from the Chairman of NRC, he and the Administrator of EPA will meet in the near future to address policy issues before the two agencies. NRC's Executive Director for Operations and Director, Office of Nuclear Materials Safety and Safeguards are meeting with their counterparts in EPA to lay the groundwork for the meeting between the Chairman and the Administrator.

Question 9:

What are the differences in requirements between RCRA and AEA regulation of waste burial grounds which impact compliance by licensees or permittees? Can both sets of standards be complied with simultaneously? Should both sets of standards be complied with simultaneously? Please provide an analysis of specific compliance requirements, addressing at a minimum the following issues:

(A) RCRA regulation and AEA regulation require different systems for minimizing of leachate formation and groundwater contamination. Which should take precedence: EPA's requirement of synthetic liners with leachate collection and removal systems, or NRC's discouragement of leachate collection systems, emphasizing site characteristics and waste packaging?

(B) Should the treatment, storage, and disposal facilities bear responsibility for waste analysis and characterization, as is the case under RCRA, or should the generator bear this responsibility, as is the case under the AEA?

(C) Discuss how imposition of RCRA regulations on radioactive waste should be adjusted to adapt to worker exposure and environmental exposure to radiation resulting from chemical analysis, inspection and sampling through opening of containers, and pumping, treatment and redispal of potentially contaminated leachate.

(D) Will storage permit requirements under RCRA be imposed on generators of radioactively contaminated chemicals, including hospitals, medical research facilities, and universities, which are now exempt from storage requirements for such wastes?

(E) Under the pending RCRA reauthorization, many organic wastes would be prohibited from landfill disposal. Does suitable capacity exist for treatment and disposal of affected organic wastes which are radioactively contaminated?

(F) Will post-closure financial responsibility requirements be applied to radioactive wastes regulated under RCRA?

Answer.

There are a number of differences in requirements between EPA and NRC waste disposal regulations which impact compliance by licensees or permittees. The differences are such that we believe it will be extremely difficult if not impossible for the two requirements to be complied with simultaneously. Since the two sets of requirements reflect differences in the types of processes generating the waste, as well as the expected physical and chemical characteristics of the waste, we do not believe that both sets of standards should be complied with simultaneously.

Before addressing the specific issues you have raised under paragraphs (A) through (F) of this question, the following background might be useful in clarifying some overall philosophical and legal differences between the two agencies, as well as some major differences in waste characteristics.

Background NRC has emphasized a systems approach to low-level waste disposal, including consideration of site selection, site design and operation, waste form, and disposal facility closure. In addition to focusing on disposal site performance, NRC has specified a number of requirements which must be accomplished by the waste generator, including requirements for waste form and content, waste classification, and waste manifest. This emphasis on the waste generator is possible because almost all of the activities generating low-level radioactive waste are licensed by either NRC or Agreement States. In addition, NRC's low-level waste disposal regulation, 10 CFR Part 61, in large part takes a performance objective approach, in which the overall goals of waste disposal are stated, and then considerable flexibility is maintained in how these performance objectives may be achieved. We expect that only a small number of new disposal sites will be licensed by the year 2000, and the specific manner in which a particular disposal facility will be designed and operated can be worked out for each site as part of a detailed license review application. Finally, almost all of the waste disposed of in a low-level waste site, if it were not contaminated with radioactivity, could be safely disposed of in a sanitary landfill. Part 61 regulations, as well as license conditions at existing operating disposal facilities, prohibit the disposal of wastes with chemically reactive or other characteristics that are generally used to identify hazardous wastes. Of the waste that contains both hazardous material and radioactive material licensed under AEA, almost all consists of scintillation liquids. These scintillation liquids are generated as part of chemical and biological research activities by hospitals and research organizations.

EPA, on the other hand, has followed a more prescriptive approach in regulating hazardous waste disposal operations, and less attention is focused on the waste generator. In this regard, it may be noted that while a waste generator must notify EPA that he is generating hazardous waste, the specific activities generating the waste are not licensed under RCRA. The overall objectives that must be achieved in hazardous waste disposal are stated, but the RCRA regulations also go on to prescribe certain site design and operation requirements that are intended to ensure that the overall objectives are met. We believe that this greater degree of prescriptiveness in meeting the EPA regulations is at least in part due to the provisions of RCRA and to the large number of hazardous waste facility permits that EPA

will need to process. Less time in permit application review can be anticipated under the EPA approach. Also, Section 3004 of RCRA requires that the standards for owners and operators of waste treatment, storage and disposal facilities must, among other things, include requirements for treatment, storage or disposal "pursuant to such operating methods, techniques and practices as may be satisfactory to the Administrator."

Finally, the wastes disposed of in hazardous waste sites are much more chemically reactive than low-level waste, as well as being more difficult to characterize. These wastes may contain corrosive liquids, for example, that would be prohibited at an LLW site.

Specific Issues. Our responses are provided in the order given in the letter.

(A) We believe that the choice of a particular approach to minimizing leachate formation and groundwater contamination involves legal, policy, and technical considerations which differ for hazardous and low-level radioactive waste disposal. We did not participate in EPA's analysis of hazardous waste disposal and have not formed a position on EPA's use of synthetic liners and leachate detection and removal systems at hazardous waste facilities. For low-level waste disposal, however, we believe that the overall approach adopted in the Part 61 regulation is most suitable.

(B) We believe for low-level radioactive waste disposal, the waste generator should generally bear responsibility for waste analysis and characterization. This is because the waste generator has control over the process generating the waste and also because of our concerns regarding the possibility of excessive personnel exposures at low-level waste sites. For hazardous waste disposal, EPA's approach may well be the only feasible option.

(C) We do not believe that the RCRA regulations on waste chemical analysis, inspection, and sampling should be generally applied to low-level waste disposal. Neither should EPA requirements on leachate pumping and treatment. For low-level waste, we believe that waste characterization activities should generally be performed by the waste generator. Such waste characterization activities must already be carried out by waste generators, and to require disposal facility operators to perform detailed confirmatory analysis would needlessly expose site personnel to additional doses of radiation. As for leachate pumping and treatment, we would prefer to eliminate the need to do so to the extent possible.

(D) Under EPA regulations in existence and now being contemplated, permits may indeed be required by EPA for such facilities, but only for that small volume of waste which is both radioactive and chemically hazardous. We do not believe that such permit requirements should be required for disposal of waste into a low-level waste facility. The existing regulatory framework for radioactive waste management is sufficient. Suppose, however, that NRC makes a determination that a particular waste stream generated by such a facility contains so little radioactivity that it does not need to be considered as a radioactive waste.

Whether or not the waste generator needs a hazardous waste permit to dispose of this waste as a non-radioactive waste is a question that should be determined by EPA.

(E) NRC would prefer that organic waste contaminated with radioactivity (e.g., liquid scintillation waste) be eliminated from low-level waste sites. NRC is encouraging alternative disposal methods such as incineration. Development of capacity for such alternative disposal methods will take time, however, and in the interim we believe that some land disposal capacity should be maintained. Currently, disposal of such waste essentially is restricted to low-level waste disposal sites located in extremely arid environments. This minimizes impacts while alternative disposal methods are being developed.

(F) Post-closure financial responsibility requirements exist for hazardous waste disposal facilities licensed under RCRA as well as low-level radioactive waste disposal facilities licensed under the AEA. Any radioactive waste that also contains hazardous chemicals would automatically be covered under NRC or Agreement State requirements if disposed into a licensed low-level waste disposal facility. We are uncertain what EPA may decide its statutory or policy requirements are in this area. We believe that there is no need for such facilities to also comply with the RCRA requirements.

Question 10: In general, does the NRC regulatory system of generator responsibility, reliance on packaging, 300-year stabilization, and using site characteristics as an isolation mechanism achieve EPA's goal under RCRA of elimination of contaminated leachate migration beneath the disposal facility?

Answer.

Based on our experience, we do not believe that any combination of site characteristics, reasonably available technology, and good management practices can completely eliminate leachate migration for the long run. NRC does believe, however, that the regulatory system embodied in 10 CFR Part 61, including generator responsibility and reliance on packaging, waste stabilization, and site characteristics, provides a more effective long-term approach to minimizing the formation and migration of leachate from radioactive waste than a policy that relies heavily on the use of liners for burial trenches. EPA itself recognized the limitations of liners in its standards for owners and operators of hazardous waste treatment, storage and disposal facilities under RCRA, and these standards require only that such liners prevent the migration of wastes during the "active life" and subsequent closure period of a landfill (see Section 264.301(a)(1) of 40 CFR 264, Federal Register Vol. 47, No. 143, July 26, 1982, p. 32365). The NRC staff has not critically analyzed the synergistic effects of applying both NRC and EPA criteria to control leachate migration in the long run.

EPA's approach may well be most appropriate for the wide variety of chemical wastes under its jurisdiction, and we believe liners to be effective for mill tailings ponds where leachate formation can be reduced by evaporation. For burial of the low-level radioactive wastes we regulate, however, we do not believe that liners will totally eliminate the potential for groundwater contamination. At sites located in humid environments, we have concerns that liners will contribute to the accumulation of leachate which, if not removed, will fill up the disposal cells and possibly overflow. Removal and treatment of this leachate will almost certainly involve a release of some of the contaminants to the environment.

Question 11: What obstacles exist to application of only one set of regulatory requirements by one Federal agency for disposal of radioactively contaminated chemical wastes?

Answer.

The principal obstacle appears to be the need for agreement that certain waste streams are to be regulated exclusively under the Atomic Energy Act, and others are to be regulated exclusively under RCRA. Section 1006(a) of RCRA provides that "Nothing in this Act shall be construed to apply to (or authorize any State, interstate, or local authority to regulate) any activity or substance which is subject to the ... Atomic Energy Act of 1954 ... except to the extent that such application (or regulation) is not inconsistent with the requirements of such Acts." As we have noted in our responses to your previous questions (6., 7. and 9.), we believe regulation by EPA under RCRA of radioactively contaminated chemical wastes currently under NRC and Agreement State jurisdiction is inconsistent with our regulatory requirements established pursuant to the Atomic Energy Act. Radioactively contaminated chemical wastes regulated by NRC and Agreement States should not be regulated under RCRA. Others, such as certain scintillation and animal laboratory wastes that NRC determines not to be of NRC regulatory concern may be regulated by EPA or authorized States under RCRA without conflict with Atomic Energy Act regulation. NRC does not have jurisdiction over naturally occurring and accelerator-produced radioactive materials (NARM).

Question 12: Does NRC have legal authority to settle any conflicts between NRC and EPA under RCRA and the AEA regulation through a memorandum of understanding? What would be the applicability of such a memorandum to the licensing or permitting activities of states under RCRA or the AEA?

Answer.

NRC and EPA could use a memorandum of understanding (MOU) to clarify the areas where each would exercise its authority. In the past, NRC has entered into MOUs with EPA including one on the regulation of radionuclide emissions (45 FR 72980) and another which incorporated the MOU between the former Atomic Atomic Energy Commission and EPA concerning responsibilities for AEC-licensed facilities (38 FR 24936).

Ideally, such an understanding would be reached before the promulgation of conflicting or inconsistent regulations. though amendments to promulgated regulations could be initiated in light of an MOU. An MOU would not be effective in settling conflicts in statutory directives. Since state programs are compatible with NRC regulations and equivalent and consistent with EPA's hazardous waste program, a memorandum between NRC and EPA could be structured to eliminate conflicts with these state regulatory programs.

Question 13:

EPA has designated disposal sites now covered by the Uranium Mill Tailings Control Act for applicability under the Superfund program. What is the difference in requirements under these authorities? What conflicts are created by this designation? What is EPA's authority over these sites vis-a-vis the NRC or the Agreement State in which the site is located?

Answer.

The sites that EPA has designated for cleanup under the Superfund program are active sites covered by Title II of UMTRCA. It is our understanding that EPA can not take action under Section 104 of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) at the inactive sites listed in Title I of UMTRCA.

The major difference in the requirements of these two programs is that UMTRCA requirements are prospective in requiring the byproduct material licensee to provide financial arrangements for decontamination, decommissioning and reclamation prior to license termination. In contrast, the Superfund program is retrospective. It enables EPA to act toward the clean-up of any accidental release from a waste disposal site, and then hold the operator or owner financially responsible for the cost of cleanup.

There are also differences in each agency's statutory authority to take remedial action. To trigger the Superfund response authority for a hazardous substance there must be a release or substantial threat of release. For a pollutant or contaminant not designated a hazardous material under Superfund, a release or threat must be one that may present an imminent and substantial danger to the public health and welfare. Under the Atomic Energy Act, as amended by the Uranium Mill Tailings Radiation Control Act, a threat to health or a danger to life or property triggers the Commission's authority to order remedial action.

In the case at hand, the areas EPA has designated for cleanup under Superfund are all off-site locations, while the focus of UMTRCA is on on-site contamination. While this EPA designation does not appear to present a conflict under these circumstances, we believe the overlap in statutory jurisdictions provides the potential for conflict, as noted below.

In response to the final part of this question, it is our understanding that in designating sites in Agreement States for Superfund action, the EPA has provided back-up authorities for assuring cleanup. EPA's September 8, 1983 Federal Register notice on its designation noted:

"EPA recognizes that the licensing State may be able to ensure cleanup of any release through the license, but has decided to list such sites on the NPL [National Priority List for cleanup] to provide potential Federal authorities if necessary. Since listing on the NPL in no way determines whether actual cleanup actions will be taken, EPA will be able to defer to the licensing State whenever the Agency determines that State efforts are adequate to address the problem."

We believe, however, that whenever EPA designates a site subject to Commission or Agreement State authority under the Atomic Energy Act and the UMTRCA (Title II), the person directed by EPA to take or finance the remedial action could be subject to requirements that may be duplicative, inconsistent, or in direct conflict with the requirements of the Commission.

PREPARED TESTIMONY
SUBMITTED BY
UNITED STATES NUCLEAR REGULATORY COMMISSION
PRESENTED BY
G. W. KERR, DIRECTOR
OFFICE OF STATE PROGRAMS
TO THE
COMMITTEE ON THE JUDICIARY
UNITED STATES SENATE
ROCKY MOUNTAIN LOW-LEVEL RADIOACTIVE WASTE COMPACT
(S. 1991)

SUBMITTED: January 12, 1984

Mr. Chairman and members of the Committee, I am pleased to be here today to present the comments of the Nuclear Regulatory Commission pertaining to S. 1991, the bill which would provide Congressional consent to the Rocky Mountain Low-Level Radioactive Waste Compact.

The Rocky Mountain Low-Level Radioactive Waste Compact was finalized in early 1982. The Compact has since been enacted into law by four of the six eligible states - Colorado, Wyoming, New Mexico and Nevada. Under the terms of the Compact, the States of Arizona and Utah are also eligible to become parties to the Compact. Other states may be made eligible by unanimous consent of the Rocky Mountain Low-Level Radioactive Waste Board.

The NRC has several concerns with the Compact as submitted. These relate to the scope of the Compact, restrictions on exports and imports contained in the Compact, the definitions of low-level radioactive waste and transuranic contamination, and the potential for conflict with NRC and DOT packaging and transportation regulations.

The Rocky Mountain Board has attempted to address these concerns by adopting two resolutions (Attachments 1 and 2) and by proposing conditional consent language to Congress. The Commission notes that the two resolutions are not binding on future Boards and believes that similar language ought to be incorporated into the consent legislation itself in order to fully resolve its concerns.

I would now like to discuss briefly each of the Commission's concerns with the Compact as submitted.

Scope of the Compact

The Commission's concerns with the scope of the Compact are similar to those already expressed with respect to other compacts. As with the other compacts submitted to Congress, the Rocky Mountain Compact goes beyond disposal into almost all aspects of low-level radioactive waste management. The Low-Level Radioactive Waste Policy Act of 1980 confers authority on the states to enter into compacts with respect to the disposal of low-level radioactive wastes. It does not, in our opinion, confer additional authority to the states with respect to generation, transportation or any other activity that does not constitute "disposal".

The Commission is also concerned that the Compact could be interpreted to permit the Rocky Mountain Board to assume health, safety, or environmental regulatory functions that would be duplicative of the NRC or the Agreement States. On August 5, 1983, the Board attempted to address this concern by adopting unanimously a resolution resolving that, "The Board will not establish any regional health, safety or environmental regulatory functions."

The same resolution also acknowledged that "the only regional regulatory authority contained in the Compact concerns the Board's approval of regional facilities solely on economic criteria which are outside the

pervue of the Atomic Energy Act and the NRC (under the Compact, all health and safety authorities continue to be vested in the individual states and/or the NRC)."

Import Restrictions

Article VII(c) of the Compact, when read together with the definitions of "facility" and "management" contained in Article II, would seem to restrict the importation of out-of-region waste for collection, consolidation, storage, treatment and incineration. This is a broader restriction than is allowed by Public Law 96-573, which confers authority to restrict import for "disposal" only, and may place an undue burden on interstate commerce.

The Commission would note that careful adherence to the waste management system currently in place in Section 20.311 of NRC's regulations should prevent the unauthorized disposal of out-of-region waste in a regional disposal facility and alleviate any Compact state concerns arising from importation of wastes for purposes other than disposal.

Export Restrictions

The Compact prohibits the export of low-level radioactive waste for management outside the region without authorization by the Rocky Mountain Board. This provision does not conform to Public Law 96-573, which does not authorize restrictions on exports, and could place an undue burden on interstate commerce.

The purpose of this restriction, according to the Board, is to assure the economic viability of the regional facility. It may be useful to allow the export ban to remain in the compact. However, we believe that provision needs to be made for an exception to such a ban for health and safety reasons.

Definitions of Low-Level Radioactive Waste and Transuranic Contamination

The definition of low-level radioactive waste as given in Article II(g) comports with the definition in Public Law 96-573 and NRC regulations with the following exceptions.

First, the Compact definition specifically excludes "waste material containing transuranic elements with contamination levels greater than ten nanocuries per gram of waste material." This limitation conflicts with the current NRC definition contained in 10 CFR 61.55(a)(3), Table 1, which prescribes an upper limit on transuranic contamination of low-level waste of 100 nanocuries per gram.

The Rocky Mountain Board has attempted to address this inconsistency by adopting a resolution raising the limit for transuranic nuclides from 10 to 100 nanocuries per gram of waste material. It has also proposed Congressional consent language which conditions Congressional consent of the Compact on the assurance that the Rocky Mountain regional facilities will use the current NRC definition for low-level wastes contaminated with transuranic elements. The NRC believes that this conditional consent language, together with the Board resolution, would adequately resolve this inconsistency.

Similarly, the Board has taken action by resolution and in proposing Congressional consent language to bring the definition of Federal waste in Article II(g)(i) of the Compact into conformity with that contained in Public Law 96-573.

Finally, the Compact definition in Article II(g)(v) of "wastes from mining, milling, smelting, or similar processing of ores and mineral-bearing material primarily for minerals other than radium" differs significantly from the definitions in Public Law 96-573 and NRC regulations. Nonetheless, the NRC has no objection to this part of the definition, which addresses a unique regional problem.

Packaging and Transportation

The NRC has expressed its concerns to the party states that the Compact may be construed to authorize the Rocky Mountain Board or states party to the Compact to inspect NRC licensees or promulgate packaging or transportation requirements which may be inconsistent with federal law.

In an effort to alleviate these concerns, the Rocky Mountain Board has adopted a resolution acknowledging that both the Board and the states party to the Compact are prevented by law from inspecting NRC licensees except as may be provided under section 274i of the Atomic Energy Act of 1954, as amended, and resolving that the Board "will not adopt packaging or transportation requirements which would be inconsistent with federal provisions."

Commission Recommendations

The Commission believes that its regulatory and statutory concerns with respect to the scope of the Compact, export and import restrictions, the definitions of low-level waste and the possibility of conflicting regulations on packaging and transportation would be addressed if the Congressional consent language were to incorporate a detailed clause leaving intact the primacy of existing federal law and federal regulatory jurisdiction along with language found in Resolutions 1 and 2, as adopted by the Rocky Mountain Low-Level Waste Board on August 5, 1983. The Commission recommends that Congress incorporate such consent language into S. 1991 prior to ratification of the Rocky Mountain Compact.

Conclusion

The Rocky Mountain states moved quickly to respond to the major challenges of the Low-Level Radioactive Waste Policy Act of 1980. The states and their negotiators who developed this compact are to be commended. Similar interstate compacts have already been submitted to Congress for the Northwest, Southeast and Central regions. The granting of Congressional consent to these compacts will be an important milestone toward the goal of complete implementation of the Low-Level Radioactive Waste Policy Act of 1980.

Much remains to be done, however. The NRC is hopeful that the states in the Midwest and Northeast will continue their progress toward regional

compacts for those parts of the nation and that all states will have achieved workable solutions to the problem of low-level radioactive waste disposal by the statutory deadline.

Thank you for providing this opportunity to speak to you today. Our detailed responses to the questions posed in the Committee's letter of December 7, 1983 are attached to my testimony (Attachment 3). I would be pleased to answer any questions you may have.

Answers to questions posed by the Committee on the Judiciary, U.S. Senate regarding the Rocky Mountain Low-Level Radioactive Waste Compact (S. 1991) for the hearing in Cheyenne, Wyoming, January 12, 1984.

QUESTION 1a. Is the Rocky Mountain Low-Level Radioactive Waste Compact, in its present form, consistent with the terms and conditions of the Low-Level Radioactive Waste Policy Act?

ANSWER.

The proposed compact for the Rocky Mountain States (S. 1991) is generally consistent with the terms and conditions of the Low-Level Radioactive Waste Policy Act with the following exceptions:

A. Import Restrictions

Article VII(c) of the Compact, when read together with the definitions of "facility" and "management" contained in Article II, would seem to restrict the importation of out-of-region waste for collection, consolidation, storage, treatment and incineration. This is a broader restriction than is allowed by Public Law 96-573, which confers authority to restrict import for "disposal" only, and may place an undue burden on interstate commerce.

The Commission would note that careful adherence to the waste management system currently in place in Section 20.311 of NRC's regulations should prevent the unauthorized disposal of out-of-region waste in a regional disposal facility and alleviate any Compact state concerns arising from importation of wastes for purposes other than disposal.

B. Export Restrictions

The Compact prohibits the export of low-level radioactive waste for management outside the region without authorization by the Rocky Mountain Board. This provision does not conform to Public Law 96-573, which does not authorize restrictions on exports, and could place an undue burden on interstate commerce.

The purpose of this restriction, according to the Board, is to assure the economic viability of the regional facility. It may be useful to allow the export ban to remain in the compact. However, we believe that provision needs to be made for an exception to such a ban for health and safety reasons.

QUESTION 1b. What additional changes, if any, would you recommend prior to ratification of this compact by the Congress? If such changes are necessary, what approach, in your judgment, will best serve to accomplish this end in a fashion that will withstand future legal challenges while at the same time minimizing or eliminating the need for each compact state to readopt the compact.

ANSWER.

The Commission recommends that Congress incorporate consent language addressing NRC regulatory and statutory concerns prior to ratification of the Rocky Mountain Compact S. 1991. If the Congressional consent language incorporates a detailed clause leaving intact the primacy of existing Federal Law and Federal regulatory jurisdiction along with language found in Resolutions 1* and 2* as passed by the Rocky Mountain Low-Level Waste Board, the NRC is supportive of passage.

* Addresses NRC regulatory concerns with scope of the compact; export and import restrictions; definition of low-level waste; transuranic contamination; and NRC and DOT packaging and transportation regulations.

QUESTION 2. Based upon current and projected rates of generation of low-level waste, is it reasonable to expect that the Rocky Mountain region will be able to design, construct, license, and operate a low-level waste disposal facility that satisfies all applicable health and safety requirements and, at the same time, is economical to operate?

ANSWER.

The U.S. Nuclear Regulatory Commission (NRC) has not conducted any studies regarding the feasibility of economical site operations. However, the NRC Staff should like to note that under a grant from the U. S. Department of Energy, Colorado contracted with Ford, Bacon and Davis, Inc., for a study to evaluate the economic feasibility of operating a low-level radioactive waste disposal facility for the six-state Rocky Mountain Compact and to assess the management options and the economic impacts as they relate to the specific circumstances in the Rocky Mountain Region. Colorado reported on the study in "Economics of a Low-Level Radioactive Waste Management Facility for the Rocky Mountain Region," Mary Whitman et al, Office of the Governor, DOE/ID/12371-6, September 1983. The report concluded that there are measures that may be taken to keep invested capital and operating expenses at a minimum, enabling the site operator to make a reasonable profit on the investment while charging disposal rates comparable with those of existing commercial facilities. Although the NRC staff has not conducted a detailed review of this report, the results of this report appear to indicate that cost savings of approximately a factor of two or more might be achieved compared to the conclusions of the U. S. Department of Energy funded economic analysis prepared by EG&G Idaho, Inc. that is widely available, "An Analysis of Low-Level Waste Disposal Facility and Transportation Costs," National Low-Level Radioactive Waste Management Program, DOE/LLW-6Td, April 1983. The Rocky Mountain report provides economic estimates for relatively small disposal sites whereas the EG&G Idaho Inc. report makes economic estimates for relatively large disposal sites. The reports can be compared only where they overlap. Both of these reports make the assumption that the sites satisfy all applicable health and safety requirements of the NRC and/or Agreement States. They both show that the larger the volume of low-level radioactive waste disposed, the smaller the unit disposal costs. According to the Colorado report, without Arizona as a party State of the Rocky Mountain Compact, the unit cost of disposal may double because the large amount of low-level radioactive waste that Arizona is forecast to produce would not be disposed of in the Rocky Mountain site.

QUESTION 3.

What provisions have been included in this compact to ensure that the uniform national requirements governing the packaging and transportation of low-level waste will be enforced in a consistent fashion throughout the region?

AN ER.

Articles III(f)(i) and III(f)(v) may require adherence by party States to packaging and transportation regulations of the host State that could conflict with the authority of NRC and the U.S. Department of Transportation. These concerns can be removed through Congressional consent language. National requirements governing the packaging and transportation of low-level radioactive waste should be enforced in a consistent fashion throughout the Rocky Mountain Compact Region.

QUESTION 4a. To what extent, if any, does the membership of this compact -- consisting, as it does, of both agreement and non-agreement States -- pose the need for additional coordination in the licensing of a disposal facility and in the regulation of packaging and transportation of low-level waste within the region?

ANSWER.

If the state is a non-Agreement State the NRC is the regulatory authority for the licensing of a disposal facility and in the regulation of packaging and transportation of low-level waste within the region. If the state is an Agreement State, the State is the regulatory authority and its program must be compatible with that of the NRC. NRC has always maintained a close relationship with the Agreement States in the area of developing NRC regulations. NRC has offered the non-Agreement States an opportunity for the same kind of relationship when considering changes to 10 CFR 61, the NRC's regulation for land disposal of low-level radioactive waste.

With regard to the regulation of packaging and transportation of low-level waste within the region, and the impacts of Articles III(f)(i) and III(f)(v) that may require adherence by party States to regulations that could conflict with the authority of NRC and the U.S. Department of Transportation, the NRC has the authority to enter into Memoranda of Understanding (MOU) under Section 274i of the Atomic Energy Act of 1954, as amended. On-site inspection of waste packaging by certain NRC licensees can be permitted under an MOU between NRC and each of the States in the compact.

NRC has published a Federal Register Notice (48 FR 49562) with a proposed MOU by which States can inspect certain NRC licensees' activities related to packaging and transportation of low-level waste destined for disposal at a commercial low-level waste site. It is limited to inspection of packaging, packaging procedures and transport vehicles. The inspection would be to determine compliance with NRC rules and regulations. The concept of the agreement under 274i is directly responsive to a need perceived by the host states for a greater frequency of inspection of waste shipments.

QUESTION 4b. What steps have been or will be taken by the NRC to ensure that concerns of both agreement and non-agreement States that may arise in the course of implementing this compact can be resolved expeditiously and to the satisfaction of all parties.

ANSWER.

The NRC Regional State Liaison Officer continues to attend Board meetings of the Rocky Mountain Low-Level Radioactive Waste Board and provides assistance to the States as requested. Consequently, because of the constant communications with the party States, NRC staff believes that concerns that arise during the implementation of this compact can be resolved expeditiously and to the satisfaction of all parties without additional coordination effort.

QUESTION 5.

Upon identification of a potential site by the Rocky Mountain region, what steps must be taken in order to obtain a license for that site? How long do you expect the licensing process to take?

ANSWER.

The specific steps to be taken to obtain a license for a selected site may vary according to whether the NRC or an Agreement State will be the licensing authority. We will describe the major steps in the NRC licensing process. These steps are described in more detail on pages 5-46 through 5-48, NUREG-0945, the Final Environmental Impact Statement for NRC's 10 CFR Part 61 licensing rule for land disposal of low-level radioactive wastes.

1. After a proposed disposal site has been identified, the applicant begins a detailed investigation of the geology and hydrology of the proposed disposal site. The applicant also initiates a preoperational program to monitor surface and ground water transport.
2. The applicant prepares an application for the land disposal facility following Subpart B of the Part 61 rule. The applicant also prepares an environmental report.
3. Licensing activities begin when the applicant files the application. Prior to docketing, the application is reviewed for completeness and acceptability, and a notice of receipt of the tendered application is published in the Federal Register. The Commission notifies State, local, and tribal officials and begins to coordinate with these officials. Once docketed, the application is again noticed in the Federal Register and the application and accompanying environmental report is widely distributed. An opportunity for interested parties to request a hearing is provided, and application fees are paid in accordance with 10 CFR Part 170.
4. The regulatory review period follows. The applicant continues any disposal site studies and the preoperational observation and monitoring program. The applicant also responds to information requests from NRC. The application and environmental report are updated if necessary. Construction may not begin until a decision is made to issue the license.
5. Based upon the application, environmental report, and any additional information, the Commission prepares a draft environmental impact statement (DEIS) and publishes it for public comment. Based upon public comments on the DEIS and any additional information, the staff prepares and publishes a final environmental impact statement (FEIS).

6. If hearings are requested, an Atomic Safety and Licensing Board (ASLB) is appointed. Hearings, if any, would be held in accordance with existing rules in 10 CFR Part 2. An Atomic Safety and Licensing Appeal Board, and/or the Commission may review the ASLB findings or the ASLB findings may be appealed to these next levels and to the courts.
7. Upon completion of the hearings and resolution of any outstanding issues or appeals, the Director of the NRC Office of Nuclear Material Safety and Safeguards takes final action to issue the license in accordance with the rule and any conditions rendered by the Licensing or Appeals Boards or the Commission. Pursuant to a Commission order 10 CFR 2.765, the Director of Nuclear Material Safety and Safeguards may not issue a license under Part 61 or any amendment to such a license which may significantly affect the health and safety of the public, until expressly authorized to do so by the Commission. A notice is published in the Federal Register.
8. If the ownership of the site land has not been transferred to the State or Federal government, transfer would now take place. The site must be owned by the State or Federal government before the license can be issued.

NRC staff estimated in the FEIS on Part 61 that site selection and characterization would take one to two years, and the licensing process would take one to two years. Thus, depending on the characteristics of the site and the complexity of the NRC review, our process could take from two to four years. A protracted hearing would obviously extend this time estimate.

The time it takes to license a low-level radioactive waste disposal facility in Colorado is discussed in a report prepared by Mary Whitman, Office of the Governor, "Strategy and Plan for Siting and Licensing a Rocky Mountain Low-Level Radioactive Waste Facility," DOE/ID/12371-1, September 1983. The overall time from site selection through licensing is estimated to be four years and nine months. The Radioactive Materials License issued by the Colorado Department of Health is estimated to take two years and six months. If a Federal Environmental Impact Statement is required, the time for that is estimated at two years. According to the report, this action would be needed only if the site that is proposed is on Federal land. Colorado requires additional licenses, such as air emissions, subsurface disposal, special use and certificate of designation. All of the licensing activity is done concurrently. The longest one, the Radioactive Materials License, is the critical one in terms of time.

QUESTION 6.

In the event that the Environmental Protection Agency should decide to proceed with the development of environmental radiation protection standards for low-level radioactive waste disposal, what impact will this have, in your judgment, on the implementation of the regional compact process, the development of regionally-distributed disposal sites, and the application of NRC's recently promulgated national licensing standards (10 CFR Part 61)? Based upon the record developed in support of the NRC's existing licensing standards, is there a need for an EPA standard to ensure that the public health and safety will be protected? Please explain. Are the requirements of 10 CFR Part 61 legally defensible?

ANSWER.

The Commission is concerned that EPA's proposal to develop a standard for the disposal of low-level waste creates a state of regulatory uncertainty which could slow the states' development of low-level radioactive waste disposal sites. EPA's proposed action presents the possibility of regulatory requirement inconsistent with those established by the NRC and, thus, a time consuming process to conform NRC's regulation to those standards. This potential for change and delay could deter states from entering into compacts and selecting disposal sites.

The Commission believes that its regulatory structure in Part 61 will provide reasonable assurance of public health and safety for low-level waste sites located in non-Agreement States. In Agreement States, low-level waste disposal regulations must be compatible with the NRC's and thus, provide essentially the same level of reasonable assurance of public health and safety. The NRC's regulations were developed after an extensive rule-making process and in cooperation with EPA. NRC staff consulted extensively with EPA staff to insure that potential public exposures expected from meeting these requirements at low-level waste disposal facilities would be consistent with EPA's anticipated standards. In a February 1983 letter to the General Accounting Office on these standards, EPA itself acknowledged that NRC's performance requirements for general public exposure were based on the "proper range of from 1 to 25 millirem per year" and that NRC's requirements "Should be compatible with an EPA standard in that range." Accordingly, if as we expect, EPA's standard would be compatible with NRC regulations, we question whether EPA's standard would add materially to the public health and safety.

Finally, the legal defensibility of Part 61 is moot because the time to petition for review of the rule has passed. Moreover, since there is no statutory obligation for EPA to promulgate a general standard covering materials regulated under Part 61, the existence of any general standard set by EPA is not a legal prerequisite to the validity of Part 61. However, because NRC rules would have to implement any EPA standard, EPA's promulgation of standards in conflict with Part 61 would present a serious problem of interagency coordination in NRC's regulating this activity and of public confusion and unnecessary cost in efforts to deal with conflicting or inconsistent regulations.

QUESTION 7.

To what extent, if any, are the requirements of the Resource Conservation and Recovery Act (RCRA) applicable to disposal sites licensed pursuant to 10 CFR Part 61? Are the requirements of RCRA compatible with those of 10 CFR Part 61? If the requirements of RCRA are applicable to low-level waste disposal sites, please explain in detail those steps that will need to be taken by the NRC and by the licensees to comply with RCRA.

ANSWER.

Source, special nuclear, or byproduct material as defined by the Atomic Energy Act of 1954 are expressly excluded from the meaning of solid waste under the Resource Conservation and Recovery Act. Nothing in the RCRA applies to any activity or substance subject to the Atomic Energy Act except to the extent that RCRA regulations are not inconsistent with the requirements of the Atomic Energy Act. Thus, if RCRA regulations are not inconsistent with the Commission regulations, RCRA regulations may apply to hazardous wastes disposed of in a low-level radioactive waste disposal site in conjunction with exempted source, special nuclear, or byproduct material.

There are a number of differences in requirements between EPA and NRC waste disposal regulations which affect compliance by licensees or permittees. The differences are such that we believe it will be extremely difficult if not impossible for the two requirements to be complied with simultaneously. Since the two sets of requirements reflect differences in the types of processes generating the waste, as well as the expected physical and chemical characteristics of the waste, we do not believe that both sets of standards should be complied with simultaneously.

Almost all of the waste disposed into a low-level waste site, if it were not contaminated with radioactivity, could be safely disposed into a sanitary landfill. Part 61 regulations, as well as license conditions at existing operating disposal facilities, prohibit the disposal of wastes with chemically reactive or other characteristics that are generally used to identify hazardous wastes. Of the waste that contains both hazardous material and radioactive material licensed under the Atomic Energy Act, almost all consists of scintillation liquids generated as part of chemical and biological research activities by hospitals and research organizations. The wastes disposed into hazardous waste sites are much more chemically and physically reactive than low-level waste as well as being more difficult to characterize. These wastes may contain corrosive liquids, for example, that would be prohibited at a low-level waste site.

RCRA and Part 61 requirements are incompatible in a number of ways. For example, RCRA requires operators of disposal facilities to perform detailed confirmatory analyses of the chemical composition of waste. The NRC requires only waste generators to perform analysis of isotope content. Additional analysis by disposal operators would be redundant and lead to their unnecessary exposure to radiation.