

February 6, 1996

FOR: The Commissioners

FROM: James M. Taylor /s/
Executive Director for Operations

SUBJECT: EVALUATION OF ISSUES NECESSARY TO DETERMINE THE FEASIBILITY OF LICENSING, AND LEVEL OF INVOLVEMENT IN, THE DEPARTMENT OF ENERGY PROPOSED HIGH-LEVEL RADIOACTIVE WASTE SOLIDIFICATION SYSTEMS

PURPOSE:

To inform the Commission of the staff's evaluation of issues, raised in SECY-95-305, "Request to Evaluate Issues Necessary to Determine the Feasibility of Licensing and Level of Involvement in Planned Future Department of Energy High-Level Radioactive Waste Solidification Systems," that affect the staff's licensing of privatized waste treatment systems constructed for the solidification of high-level waste (HLW) from Hanford tanks, and to seek the Commission's approval of the staff's recommended level of involvement in the regulation of the Department of Energy's (DOE's) proposed High-Level Radioactive Waste Solidification Systems.

DISCUSSION:

On December 4, 1995, the Department of Energy (DOE ~~EXIT~~) briefed the staff on plans to privatize two future Hanford tank waste remediation systems (TWRS), possibly using different technologies. These TWRS will be designed, constructed on the Hanford reservation, owned, and operated by government contractors in two phases: Phase I, pilot-scale facilities; and Phase II, full commercial operations. DOE has proposed that the Nuclear Regulatory Commission license Phase II and has requested NRC to determine the appropriate level of NRC involvement in Phase I before DOE's issuance of a request for proposal on February 15, 1996.

In SECY-95-305, the staff notified the Commission of its intention to evaluate NRC options for involvement in Phase I and to characterize four issues that could affect NRC's role in Phase I and Phase II operations. These issues include: (1) the sufficiency of current NRC regulations for licensing such operations; (2) the availability of information and experience necessary for the staff to develop appropriate regulatory guidance in the time frames available; (3) the resource requirements and availability for participating in these activities; and (4) NRC's legislative basis for licensing privatized DOE contractors;

Based on the staff's past involvement in licensing new projects and technologies, the staff believes that full and early interaction with DOE is desirable for the development of staff experience in the utilized technologies. This NRC interaction would include coordination with DOE during the design review, construction, and operation of Phase I through the assignment of onsite NRC observers and dedicated resources at NRC Headquarters. A description of the work expected under this strategy, alternatives to this strategy, and associated resource commitments may be found in the [attachment](#) .

The staff has characterized four main issues that could affect NRC's role in following the proposed strategy.

Issue one involves a review of the current regulations to determine their sufficiency for regulating these new processes, which were not specifically envisioned during regulatory development. The existing [10 CFR Part 70](#) is clearly intended for regulation of receipt, possession, use, and transfer of special nuclear material in any form. Further, it is general enough in structure and content that a variety of chemical processing activities could be licensed within the rule's provisions. A similar argument can be made for [10 CFR Parts 30 and 40](#), which regulate the receipt, possession, use, and transfer of byproduct and source material, respectively. [10 CFR Part 20](#) provides standards for protection against radiation and again there is no reason to expect that the regulation would be inadequate or require revision for application to these technologies. It should also be noted that the staff is currently working on a proposed revision to [10 CFR Part 70](#) that would provide an enhanced regulatory tool because it focuses on establishing requirements that are based on an integrated analysis of the risk from potential hazards with protective measures graded in stringency in accordance with risk levels. The proposed revision will also have improved rule structure and language and will address specific safety areas not addressed by the existing rule such as fire protection, chemical safety, and management controls such as maintenance, quality assurance, configuration management, and audits and assessments. This new rulemaking could also address radioactive waste remediation activities.

Issue two is the availability of staff experience and other information that would be required in developing licensing guidance for these proposed DOE facilities. The staff is experienced in the various disciplines that would be necessary to oversee and regulate most aspects of any selected solidification technologies. However, the staff's direct experience with any such expected technologies is limited to its oversight, since 1980, of the vitrification process at the West Valley Demonstration Project (WVDP). Hot operations at WVDP are not expected to begin until sometime in late 1996. The staff will also draw on the experience of foreign governments, such as the French and Japanese, that already have commercial vitrification facilities operating. If DOE opts to use solidification technologies other than vitrification, NRC's experience base and access to information on such technologies may be more limited. At the time of operation, since the staff will have worked closely with the designers of these processes, the staff believes that with the use of a limited number of outside technical specialists, and some augmentation of staff resources, it would have the requisite expertise and experience to regulate the operation of these facilities. If the technology option chosen by DOE is radically different from technologies expected by the staff, the staff may need to revisit this issue and will inform the Commission accordingly.

Issues three and four are related to resources and the authority to expend NRC resources on this effort. The staff has explored the level of and the availability of resources needed to develop regulatory guidance, oversee Phase I activities, and license Phase II. An assessment of resource usage for Phase I and Phase II activities is presented in the [attachment](#). As noted in Chairman Jackson's January 18, 1996, letter to Mr. T. J. Glauthier, the resources to review these efforts are not in our current planning base. The fourth and clearly a fundamental issue that must be addressed in deciding the NRC role in either Phase I or II is the authority by which NRC may license or provide regulatory oversight of DOE contractor-owned facilities. The General Counsel provided initial views to the Commission on this issue in SECY-95-304. OGC is forwarding a separate paper to the Commission clarifying to what extent NRC has a statutory basis and authority to expend appropriated funds to license the solidification of the Hanford tank wastes.

RECOMMENDATION:

For the benefit of DOE's program, the staff proposes to interact with DOE during Phase I to gain useful experience in

the utilized technologies. If the forthcoming OGC analysis indicates that the NRC has the requisite statutory authority to license or if Congress specifically legislates such authority, and assuming that sufficient resources are appropriated, the staff proposes to interact closely with DOE during the design, review, construction, and operation of Phase II. This close interaction will be through the assignment of onsite NRC observers and dedicated resources at NRC Headquarters. During Phase I, NRC personnel will provide general consultation with DOE and DOE contractors on technical and regulatory issues affecting the proposed facilities as described in the proposed strategy in the [attachment](#)

 During Phase II, the staff will license the DOE contractor's commercial facilities using applicable NRC regulations. Since it is not likely that the level of involvement in Phase I can be decided before DOE's issuance of a request for proposal on February 15, 1996, the staff proposes to monitor DOE's initial procurement activities pending the Commission's decision. This level of effort will be 1 FTE or less unless otherwise directed by the Commission.

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Attachment: [Options for Involvement in Phase I and Licensing of Phase II](#) 