

DSI-22

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The Honorable Shirley A. Jackson  
Chairman  
U.S. Nuclear Regulatory Commission  
Washington, DC 20555-0001



Dear Chairman Jackson:

As an NRC staff retiree, and former charter member of the Office of Research(RES) created during the 1974 Energy Reorganization Act(ERA), I am compelled to request that the Commission reconsider its apparent position pertaining to High-Level(HLW) and Low-Level(LLW) research in Direction Setting Issue(DSI) 22. This appeal is based upon the fact that the HLW and LLW research program decisions were made prior to issuance of DSI 22, and thus, the public was never given the opportunity by the Commission to comment on what should have been key components of this DSI. This position, in its present form, and at least for HLW, flies in the face of the legislative intent of the Congress expressed in the 1974 ERA.

I submitted comments on the NRC Strategic Assessment and Rebaselining Initiative via e-mail. In Direction Setting Issue 22 - Research, however, the Commission did not really offer options for comment on HLW and LLW research. Rather, these important programs were presented in the context of rationale to justify decisions made in a de facto process which has taken place over the past year or so. The public never had an opportunity to comment on the role and scope of these elements within the NRC research program.

Even during the public meetings on the Strategic Assessment Initiative NRC staff did not adequately represent the HLW and LLW research programs such that meaningful comments or discussion by members of the public could be elicited. For these reasons, it is incumbent upon the Commission to reopen DSI 22, with full disclosure of the status of the HLW and LLW research programs, for review of the bases for decisions made prior to issuance of this DSI.

The NRC appears to have written off the HLW and LLW research programs, an action which will have serious implications for the NRC in maintaining regulatory excellence, regulatory independence and credibility in the field of radioactive waste management. This will lead to further erosion and loss of public trust and confidence in nuclear waste regulation.

The discussion presented in DSI 22 relating to the future role and scope of the NRC reactor safety research program applies equally well to the radioactive waste management programs. The NRC needs core research capabilities as well as confirmatory and exploratory research in both HLW and LLW. Serious inconsistencies are evident in the rationale presented in DSI 22 for the apparent abandonment of these programs in RES. Some examples are presented below.

#### Low-Level Waste

The discussion on page 10 of DSI 22 states that "the only license applications for a LLW disposal facility are being processed by NRC Agreement States, and no applications are expected by the NRC from non-Agreement States in the next 5 years." This point is used, in part to justify the phasing out of NRC's LLW research program, with Commission concurrence. This action raises the obvious question, "How many license applications for nuclear reactors are expected by the NRC in the next 5 years?" Since the answer is none, should the NRC phase out reactor safety research?

During the public meeting on October 31, 1996 it was implied that the Agreement States would provide their own LLW research information, hence, leading one to a logical reason for not needing the NRC program. This inference is wrong and misleading. The Agreement States do not have a research capability, nor the resources to conduct such a program. The U.S. Geological Survey terminated its LLW-related effort several years ago;

the DOE (in support of LLW facility development) sponsors technical assistance, but little in the way of independent research. In appearances before the ACNW in November 1995, and the Commission in March 1996, representatives of a number of Agreement States supported the continuation of the NRC-sponsored research program.

On page 10 of DSI 22 it is also noted that some LLW projects are being refocused on decommissioning. The NRC LLW research program, closely integrated with licensing user needs identified as recently as 1994, particularly in performance assessment (PA), and planned for closure (NUREG-1380) was sufficiently robust and generic to support the needs of decommissioning. Refocusing several LLW research projects on decommissioning should not be taken as a substitute for a bona fide LLW research program. The implied portability of decommissioning research to LLW is overstated.

Closure of many key LLW technical issues has not yet been achieved. Most of the LLW disposal facility designs being used by the States are a significant departure from that of shallow land burial, the basis for 10CFR Part 61. For example, these designs include engineered configurations and barriers such as concrete, as well as concrete waste forms. With the loss of the LLW research program, data on concrete performance under conditions which challenge radionuclide containment will not be available to the regulators, licensees or facility operators. Appropriate data will not be available to test and confirm PA sub-models and methodologies. This will also limit the value of risk-informed, performance-based assessments. Integration of site characterization, PA and environmental monitoring phases of a LLW facility will require research in support of NRC oversight of Agreement States under IMPEP. Some of these methodologies require confirmation and confidence-building for these applications. Who will the NRC turn to for a LLW knowledge base for oversight activities and to resolve and mediate technical disputes at LLW disposal facilities during site development, operation, closure and post-closure phases of the program? Will it be necessary for a panel of the National Academy of Sciences to be convened each time there is a critical finding or decision?

In DSI 5 Low-Level Waste it is the Commission's preliminary view that the preferred option is Option 2 (Assume a Strong Regulatory Role in the National Program). How can the NRC assume a strong

regulatory role in LLW without an adequate LLW research program?

In December 1995, the ACNW, in their report on the review of SECY 95-201, endorsed the need for a LLW research program. In their July 1996 report on the elements of an adequate NRC low-level radioactive waste program, ACNW, while somewhat equivocal, noted the conditions under which a LLW research program would be needed. I believe those conditions exist now.

#### High-Level Waste Research

DSI 22 does not provide a clear explanation of the status of the HLW research program in RES. On page 13 it is noted that "budget reductions have been so severe that all HLW research activities are under consideration for transfer to NMSS." This statement is confusing. How does transfer of the HLW research program to NMSS solve the budget problem, since the funding, in either case, comes from the Nuclear Waste Fund? If the HLW research program is transferred to NMSS and managed there, then the agency is in violation of the intent of the Congress in the 1974 ERA. If in order to avert this situation the HLW research program is converted to a technical analysis and assistance program then HLW research in NRC is in effect terminated. The implications of such an action are far-reaching: the NRC would no longer have an independent research capability in HLW; the contractor who was performing this research, the CNWRA, would no longer be able to retain and attract the best research talent which can also be used for licensing technical assistance. Sensitivity studies, using computer codes which have large model uncertainties because of limited research information on processes and phenomena important to HLW disposal, are no substitute for an adequate HLW research program.

To what extent have the ACNW and the NSRRC been made aware of this apparent impending foreclosure of the NRC HLW research program? Have they been asked to review the future role and scope of the NRC HLW research program? The ACRS, in a November 19, 1996 letter, developed a position on DSI 22. I am not yet aware of a similar initiative by the ACNW or the NSRRC. The main thrust of the ACRS position, albeit for reactor safety research, is generic and broadly applicable to waste management research because it addresses the future role of independent, regulatory research capability.

### Summary and Conclusions

In your public speeches you have emphasized that the NRC, first and foremost, is a scientific and technical agency. The success of the agency, past, present and future, in protecting public health and safety depends on this fundamental premise. The NRC's international reputation and its ability to gain the public trust also depend on it. As a former NRC staff member and an informed member of the public I am concerned that decisions made about the HLW and LLW research program, prior to the issuance of the DSI papers for public comment, are leading the agency in the wrong direction, and such decisions have not had the benefit of open, public review.

Managing the agency in a time of change, including downsizing, does not justify a departure from the fundamental concepts upon which the agency was built. Budgetary constraint alone does not justify removal of an important element of the regulatory structure used to ensure public health and safety in nuclear waste disposal. The quality of NRC decisions depends upon the technical staff, its technical knowledge base and the use of good science, and not on its administrative and other operating support functions. In downsizing, the Commission should be assured that its balance-of-emphasis on program staffing and program resources, as opposed to support function staff and resources across the agency is appropriate for the programs needed to carry out its regulatory function. To what extent has the Commission scrutinized and rebaselined the resources of its operating support functions?

The Commission must be assured that it has provided the agency with the right tools to build its bridge to the next century, and technical resources which are strong enough to carry the weight of the decisions the agency will have to make in order to continue to meet its responsibilities for the health and safety of the public.

If the Commission or the NRC staff has any questions or need additional information, please do not hesitate to contact me.

In view of the importance of these programs, I would be pleased to provide assistance pro bono to the NRC in any way deemed useful and appropriate.

Sincerely,

*Mel Silberberg*  
Mel Silberberg

cc:

Commissioner Rogers

Commissioner Dicus

Commissioner Diaz

Commissioner McGaffigan

Paul Pomeroy, ACNW