

EDO Principal Correspondence Control

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FINAL REPLY:

Mel Silberberg
Thousand Oaks, California

TO: Chairman Meserve

FOR SIGNATURE OF : ** GRN ** CRC NO: 01-0056
Kane, NMSS

DESC: ROUTING:
Revisiting NRC High Level Waste Research -
Management Strategy Oversight, and Resources
Travers
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SPECIAL INSTRUCTIONS OR REMARKS:
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January 16, 2001

The Honorable Richard A. Meserve
Chairman
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555-0001

Dear Chairman Meserve:

SUBJECT: REVISITING NRC HLW RESEARCH - MANAGEMENT STRATEGY, OVERSIGHT, AND RESOURCES

I am a retired, charter member of the NRC Office of Research (RES) from 1975-1994. Until 1988 I was the SES branch chief responsible for developing and managing the NRC severe accident source term research program. From 1988-1994 I was chief of the branch responsible for the RES nuclear waste research program. I continue to follow, with interest, the progress and accomplishments of the NRC in nuclear regulatory research, particularly in nuclear waste safety research, in support of the NRC's licensing and regulatory mission. Since my retirement I have periodically submitted comments to the agency on various nuclear waste safety program matters and have also published papers at several LLW conferences. It is in this context that I take this opportunity to offer what I trust will be regarded as constructive comments on an important NRC program area.

The purpose of this letter is to highlight the following concerns about the NRC nuclear waste research program, especially in high-level waste (HLW), discuss these concerns and offer recommendations:

- Since 1996 there has been a significant decline in agency support for the RES nuclear waste research program. The Commission, given the importance of safe nuclear waste disposal to the future of nuclear power in the U.S, should view this trend as a priority concern.
- At the present time RES does not sponsor, conduct or manage HLW research. Only NMSS is directly involved in programmatic activities for HLW research. This flawed strategy is a significant departure from the mandate of the Congress in the 1974 Energy Reorganization Act (ERA), and over 20 years of successful NRC experience in keeping NRC research in RES. The management strategy for the NRC HLW research program can impact: the quality of the research, the application of research results to licensing decisions, and the acceptance of those decisions by stakeholders.

- The Advisory Committee on Nuclear Waste (ACNW) performs annual reviews of NRC nuclear waste safety research. These reviews have resource-related scope and depth limitations, which do not allow the Committee to address management-policy issues and concerns, which could benefit from review and oversight.

BACKGROUND

Major policy decisions bearing on the question of NRC HLW research management strategy were made in 1996 and again in 1998, prior to the start of your term. I believe the potential consequences of these earlier decisions are sufficiently important to future NRC capabilities in nuclear waste regulation to merit your attention and review at this time. Circumstances and conditions surrounding these earlier decisions appear no longer to be a factor, and in view of the potential long-term impact on the agency, this review continues to be timely and relevant.

Review of these HLW research policy decisions is especially timely in view of the special expert panel convened by the RES in August 2000 to review the role and direction of nuclear regulatory research. On September 14, 2000 I sent a letter to the panel to express concern about the nuclear waste research program in RES (Enclosure 2), for consideration at their September 15, 2000 meeting. According to the October 2000 draft report (Ref. 1) prepared by the panel, the future of RES nuclear waste research did not appear to be within the scope of review. Thus far the review has focused only on the RES reactor safety research program. Hence, an area of research important to NRC decision-making in the coming decade will apparently not have benefit of needed external review. I will cover the RES expert panel review later under Recommendations.

Similar concerns about the RES nuclear waste research program, particularly HLW, were noted previously in my letter to Chairman Shirley A. Jackson in 1996 in response to requests for comments on the NRC Strategic Assessment and Rebaselining Initiative (Enclosure 1). These comments were not addressed in the resulting NRC Strategic Plan (FY 1997-FY2002), NUREG-1614, Vol. 1 (Ref. 2). In fact, in Reference 2, nuclear waste research was not even mentioned as a strategy under the Nuclear Waste Strategic Arena. By comparison, the other safety-related strategic arenas in Reference 2, namely nuclear reactor safety and nuclear materials safety, have identical, highlighted strategy statements for the research component. The omission of a key parallel strategy for nuclear waste research in Reference 2 is puzzling, given the importance of this strategic arena. (The most recent update of Reference 2 contains only generalized statements about the role of research.)

NRC HLW RESEARCH PROGRAM OVERSIGHT

The only internal or external oversight and review of NRC-sponsored nuclear waste research is conducted annually by the ACNW who since 1998 have issued their findings in a series of reports (Ref. 3, 4, and 5). According to these References, RES-sponsored nuclear waste research has been reduced to a generic radionuclide transport program with a budget of \$2.6 million per year. RES currently has no budget for HLW research! Apparently, the funding for this generic transport research program is considered sufficient for anticipatory research needs in nuclear waste safety. In Reference 4 the ACNW expressed concern about the size of this program and, hence, its viability.

Based upon these ACNW review reports, limited review follow-up, and observations from ACNW meeting transcripts, the ACNW reviews of HLW research appear to be challenged by scope and depth limitations, which are probably related to resource constraints. For example, in its 2000 Action Plan (Ref. 6) the ACNW assigned a first-tier priority to the issue of risk-informed, performance-based (RIPB) regulatory framework in the nuclear waste area, but assigned only a second-tier priority to waste-related research. This strategy seems inconsistent given the current technical and scientific uncertainties associated with key waste-related phenomena and processes addressed in state-of-the-art, risk-informing, performance assessment methodology. Also, in their 2000 Action Plan the ACNW included as one of their Criteria for Selecting Priority Issues, "issues that arise that are based on the scientific and technical information supporting the safety and performance assessments of nuclear waste disposal facilities, including the quality and level of expertise involved."

The NRC and others achieved substantial advancements in risk-informed analysis for nuclear reactors after extensive operating experience and research. By comparison, the HLW program, with a limited database and the challenge of predicting repository performance thousands of years into the future, is at a relatively earlier stage in the process of performing reliable risk-informed analyses. Granted that the heaviest burden to develop this information lies with the DOE, but the credibility and public acceptance of the NRC's licensing decisions will also depend upon the adequacy and quality of NRC's independent confirmatory research. The ACNW should reconsider the priority they have assigned to NRC HLW research review, and the impact of a priority change on resource needs.

NRC HLW SAFETY RESEARCH MANAGEMENT AND THE 1974 ERA

The current NRC strategy for maintaining an independent HLW safety research program is flawed. According to Reference 3, until FY 1996, RES sponsored and managed HLW research, but responsibility for HLW research and budget resources were transferred to NMSS.¹ Reference 3 further notes that NMSS contracts with the Center for Nuclear Waste Regulatory Analysis (CNWRA) for technical assistance (\$15.7 million in FY 2000 with \$14 million for HLW), much of which (the ACNW believes) is, in essence, research related to Yucca Mountain. If, in fact, NMSS-sponsored HLW work at the CNWRA involves substantial research this is a significant departure from the intent of the Congress in the 1974 ERA. (In the context of the 1974 ERA there should be a distinction between research and technical assistance)

¹ The record shows in FY 1996, as a result of severe budget reductions at the time, a decision to consolidate all HLW activities in NMSS was initiated by managers at the Office level, approved by the EDO, and the Commission informed in Memoranda dated 2/28/96 and 4/9/96 (Ref. 7). The impact on compliance with the 1974 ERA was apparently not considered. **This action, noted as an option in DSI-22, was taken even before the release of the DSI-22 review document, and benefit of any comments from stakeholders.** The transfer of HLW research back to RES was under consideration in 1997 as part of a Commission direction to move confirmatory research in the program offices back to RES (and Rulemaking to NRR and NMSS) in COMSECY-96-066 (Ref. 8) and SRM SECY-97-167 (Ref. 9), with staff responses in SECY-97-220 (Ref. 10) and SECY-98-030 (Ref. 11) and final Commission direction in SRM on SECY-97-220 (Ref. 12). The transfer of HLW research back to RES in 1998 did not occur.

Recalling the omission of research in the Nuclear Waste Safety Strategic Arena in Reference 2 raises the question: Is there a well-planned, near-and long-term strategy for HLW research involving confirmatory and anticipatory research components, which is documented in a program plan accessible to stakeholders?

The issue of research being managed by NMSS was raised in Reference 2. Briefly, the 1974 ERA specifically states that the Director of RES shall perform such functions as (1) “developing recommendations for research deemed necessary for performance by the Commission of its licensing and regulatory functions, and, (2) **engaging in or contracting for research** which the Commission deems necessary for the performance of its licensing and regulatory functions”. The 1974 ERA also states that the Director of NMSS (and NRR) shall perform such functions as “(3) **recommending research** to enable the Commission to more effectively perform its functions.” (Emphasis added above in bold) The difference in research roles and responsibility between RES and NMSS is clear.

I believe the intent of the Congress in 1974 was to separate the licensing and research responsibilities in NRC so that the licensing offices would not also have the dual responsibility for also managing research. Experience over the past two decades in the NRC has confirmed the vision of the Congress. In addition, core staff and management experience needed in the day-to-day licensing function is different from that required in RES to provide internal expertise in waste-related science, effectively plan and manage a HLW research program for the next decade and beyond, and interact with peers in the U.S. and international community. Traditionally, RES staff has accomplished this function successfully. This view is especially relevant for HLW disposal, where the resolution of most key technical issues and the related research is on the cutting-edge of science and technology.

Experience also suggests that the inherent short-term perspective and challenges of the licensing staff are not conducive to managing and planning a balanced, flexible, program of confirmatory and anticipatory research. A good example from my NRC experience was the RES-managed research program in severe accident source term, which provided the technical basis for improved reactor risk analysis, and the new Part 50 source term. Looking back on those years it is difficult to envision this outcome if the work was not managed by RES. Licensing pressures and internal competition for resources within the licensing organization can also impact the continuity and value of a research program managed by the licensing office. With the appropriate supporting research program strategy, one that has served the agency well over the years, with NRR and RES, and prior to 1996 with NMSS and RES, the licensing and research offices work in a partnership of close-coordination and mutual respect. How can the agency justify continuation of the Congressionally-mandated policy for RES and NRR, only to abandon it in the case of RES and NMSS? The apparent absence, or at best, the limited involvement of RES in HLW research matters does not appear to fully utilize a cadre of recognized and respected staff expertise in nuclear waste-related disciplines, which have traditionally been available in RES. The full staff capability and resources available within the NRC should be brought to bear on the HLW regulatory program, from the standpoint of effective and efficient resource utilization, as well as quality assurance.

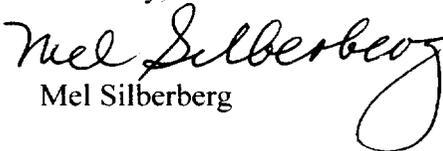
RECOMMENDATIONS

In view of the issues and concerns addressed above, the Commission and the NRC staff should consider taking the following possible actions:

- The NRC needs to answer the question: Are there sufficient program and resource contingencies to address the possibility of significant revisions to the Yucca Mountain Project over the next decade? The need for such contingencies arises from possible future changes in repository design, new findings from DOE site characterization studies, the on-going NRC licensing review, or research results from the NRC and others. A balanced NRC HLW research program of confirmatory and anticipatory research provides some measure of assurance for such contingencies.
- The Commission should change the thrust of the current question from “What can the NRC do with the resources it now has for research?” to “What should the NRC be doing in research, who in NRC should be managing the research, and how can the NRC get the resources to do the research?” For HLW in particular, the support of the agency’s decision-making process in licensing and regulation of safe HLW disposal deserves an early answer to this question, as do the concerns about the need to place the research back in RES. The Commission should take an aggressive stand in support of HLW research strategy to ensure the success of the program.
- The objectives, strategy and plan for research in the NRC nuclear waste safety arena, especially for HLW, should be documented for Commission and external review. Such documentation does not now appear to be available in the public domain.
- The Commission should revisit the rationale for and merits of staff decisions made in 1996, and again in 1998, involving the transfer of the RES HLW research program to NMSS. The short-term gains and expediency of resource challenges should not replace sound decisions needed for the nuclear waste safety mission over the long-term. If necessary this evaluation should be augmented with a top-down, high-level, external expert review of the overall strategy, management, and needs of NRC HLW research. Management policy issues are not now within the purview and scope of the ACNW.
- In addition, or alternatively, the Commission could also request that the scope and composition of the RES expert panel now reviewing the role and direction of nuclear regulatory research be revised to include nuclear waste safety research.
- The Commission should review and reconcile the current departure from the 1974 ERA mandate in the case of HLW research.
- The Commission should ask the ACNW to reevaluate the need to upgrade the priority and scope of proactive reviews of NRC nuclear waste research and identify resource impacts in their 2001 Action Plan.

I appreciate the opportunity to offer these comments to the Commission and thank you for your review and consideration. I would be pleased to address any questions or any additional details regarding the issues and concerns in this letter, and assist the agency in any way necessary in this important matter.

Sincerely,


Mel Silberberg

cc:

Commissioner Dicus
Commissioner Diaz
Commissioner McGaffigan
Commissioner Merrifield
B. J. Garrick, ACNW
J. T. Larkins, ACNW
W. Travers, EDO
W. Kane, NMSS
A. Thadani, RES
K.C. Rogers, RES Expert Panel

Enclosures as stated

REFERENCES

1. USNRC, Office of Nuclear Regulatory Research, " Role and Direction of Nuclear Regulatory Research (Draft," October 2000.
2. USNRC, Strategic Plan (FY 1997 – FY 2002), September 1997.
3. USNRC, Advisory Committee on Reactor Safeguards, NUREG- 1635, Vol. 1 "Review of the Nuclear Regulatory Commission Safety Research Program, A Report to the U.S. Nuclear Regulatory Commission," June 1998.

4. USNRC, Advisory Committee on Reactor Safeguards, NUREG- 1635, Vol. 2 “Review of the Nuclear Regulatory Commission Safety Research Program, A Report to the U.S. Nuclear Regulatory Commission,” June 1999.
5. USNRC, Advisory Committee on Reactor Safeguards, NUREG- 1635, Vol. 3 “Review of the Nuclear Regulatory Commission Safety Research Program, A Report to the U.S. Nuclear Regulatory Commission,” March 2000.
6. Letter dated April 18, 2000, from B. John Garrick, ACNW, to Richard A. Meserve, Chairman, NRC, Subject: Advisory Committee on Nuclear Waste 2000 Action Plan and Priority Issues.
7. Memoranda dated February 28, 1996, and April 9, 1996, from L. Joseph Callan, EDO, to the Commissioners, and Commissioner Rogers, respectively.²
8. Memorandum dated March 28, 1997, from John C. Hoyle, Secretary, to L. Joseph Callan, EDO, “Staff Requirements – COMSECY-96-066 – Research (DSI 22).”
9. Memorandum dated September 16, 1997, from John C. Hoyle, Secretary, to L. Joseph Callan, EDO, and Karen D. Cyr, General Counsel, “Staff Requirements – SECY-97-167 – DSI Implementation (Role of the Office of Research).”
10. Memorandum dated October 1, 1997, from L. Joseph Callan, EDO, to The Commissioners, “SECY-97-220 - Implementation of DSI 22 Research.”
11. Memorandum dated February 25, 1998, from L. Joseph Callan, EDO, to The Commissioners, “SECY-98-030 – Implementation of DSI 22 Research.”
12. Memorandum dated December 5, 1997, from John C. Hoyle, Secretary, to L. Joseph Callan, EDO, “Staff Requirements – SECY-97-220 – Implementation of DSI 22 Research.”

² Requested under FOIA (FOIA/FP 2001-0087)

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December 12, 1996

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;

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.

-6-

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,

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Mel Silberberg

cc:

Commissioner Rogers
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Commissioner Diaz
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Paul Pomeroy, ACNW

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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.

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September 14, 2000

Raymond Durante
1925 Lynn Street
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Arlington, VA 22209

Subject: Comments to the RES Special Review Panel

Dear Mr. Durante:

I am a retired, former member of the NRC Office of Research (RES) from 1976-1994. Until 1988 I was the SES branch chief responsible for developing and managing the RES severe accident research program. From 1988-1994 I was chief of the branch responsible for the RES nuclear waste research program. I applaud the efforts of RES in convening a special panel to review and develop a vision and direction for RES. This review is long overdue. The continuing erosion of the RES program is alarming because of the real threat to maintaining a viable and credible, independent nuclear safety research program at the NRC. This situation can also lead to further losses in public acceptance and confidence in the nuclear power option available to the Nation.

The real story here, however, and the purpose of my brief letter to the special panel, is to report my concern about the continuing demise of the nuclear waste research program in RES. Nuclear waste research is apparently not within the scope of the panel's review. Given the crucial importance of the nuclear waste disposal issue to the future of the US nuclear power option, there is an urgent need for a high-level review of nuclear waste research in RES and NRC. Since FY 1996 the only NRC research on high-level waste (HLW) is being sponsored by the NMSS office. Aside from the serious flaws in the programmatic viability of this strategy, it is in direct violation of the 1974 Energy Reorganization Act which clearly delineated the scope of responsibilities of the NRC program offices, and delegated only to RES, the responsibility for engaging in and contracting for safety research.

The only oversight and review of NRC-sponsored nuclear waste research is conducted annually by the ACNW who have issued their recent findings since 1998 as part of a series of reports issued by the ACRS (NUREG-1635 Vols 1,2, and 3). According to these References, RES-sponsored nuclear waste research has been reduced to a generic radionuclide transport program with a budget of \$2.6 million per year. Concerns expressed by the ACNW about the effectiveness of a program of this size have not to my knowledge been satisfactorily addressed, as of this date, by the NRC.

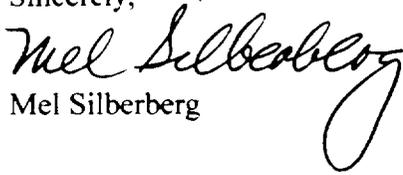
Because of the various concerns noted above, I believe it is essential that the NRC convene a special review by a panel of experts to address the adequacy and management of the NRC nuclear waste research program and core staff capabilities required to meet the challenges of the next decade.

The thoughts expressed in this letter are part of a communication being sent to the Commission under separate cover.

Thank you for the opportunity to communicate my concerns about NRC research and the vital role it should play in helping the NRC to: make credible, independent regulatory decisions, receive the acceptance and confidence of the public, and withstand the scrutiny of broad review.

Please let me know if I can be of further assistance.

Sincerely,

A handwritten signature in cursive script that reads "Mel Silberberg". The signature is written in black ink and is positioned to the right of the typed name.

Mel Silberberg