

**RESPONSE TO A DRAFT VERSION OF THE  
NRC HIGH-LEVEL NUCLEAR WASTE  
REGULATION PROGRAM (HLNWRP)  
DATED SEPTEMBER 2, 1992  
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## ACKNOWLEDGMENTS

This report was prepared to document work performed by the Center for Nuclear Waste Regulatory Analyses (CNWRA) for the U.S. Nuclear Regulatory Commission (NRC) under Contract No. NRC-02-88-005. The activities reported here were performed on behalf of the NRC Office of Nuclear Material Safety and Safeguards (NMSS), Division of High-Level Waste Management (DHLWM). The report is an independent product of the CNWRA and does not necessarily reflect the views or regulatory position of the NRC.

# 1 INTRODUCTION

In response to a letter from Ms. Clare DeFino dated October 16, 1992, and subsequent discussions modifying its content, the following observations, comments and recommendations are offered for the Nuclear Regulatory Commission's (NRC) consideration in completing the final version of subject document. This review of the High Level Nuclear Waste Regulation Program (HLNWRP) is presented in three sections, entitled General Observations, Specific Comments, and Recommendations. The Specific Comments section contains suggested language changes. Of the four major program elements contained in this draft version, only High-Level Waste Licensing and Assessing the Safety of High-Level Waste Disposal elements will be addressed herein.

## 2 GENERAL OBSERVATIONS

The material presented with the above mentioned letter is a combination of the HLNWRP for FY94-97, as part of the NRC Five-Year Plan, and Budget Estimates for FY94-95. The different origins, i.e., separate documents, suggest that these documents have been combined to integrate some of the textual material from each into this Program.

This Program is an early draft, and it is considered incomplete since various handwriting styles evidence numerous modifications are in progress.

The activities stated in the "Program Element Objectives and Guidance" and "Planned Accomplishments" sections of the two major program elements mentioned above generally refer to those associated with the NRC staff, and, except for specific references to the CNWRA, the NRC staff is assumed to be directly responsible for their prioritization, modification, and completion. Consequently, where the CNWRA is not mentioned, it has been assumed that staff resources from the NRC or other contractors will be used to accomplish the work.

The FY93-95 budget estimates on page VII-15 relative to program support for research conducted at the CNWRA do not directly correspond with figures provided by the Office of Nuclear Regulatory Research (RES) for work scheduled to begin in FY94. Planning estimates given by RES to the CNWRA indicate any resource increase for FY94 from FY93, as stated on this page, will support work on: (i) regional extensional tectonics, (ii) field studies of young volcanoes in the Basin and Range, (iii) geochronology of volcanic eruptions and prehistoric earthquakes and faulting, and (iv) mantle dynamics under the Basin and Range. It appears that the HLNWRP attributes any resource increases to research to be conducted on regional hydrogeology and colloid formation on radionuclide transport processes, in addition to mantle dynamics.

The CNWRA understands that the NRC currently has prime contracts with other "commercial contractors and universities," funded by Nuclear Waste Fund monies, to accomplish HLW-related work in these two major program elements. It is our understanding that such work may be transferred to the CNWRA upon completion of existing contracts or when the NRC finds this action appropriate in accordance with NRC policy.

While this HLNWRP is consistent with expected CNWRA activities in the HLW area, there appears to be a need for further integration of the technical assistance program between the Offices of Nuclear

Material Safety and Safeguards (NMSS) and Nuclear Regulatory Research (see paragraphs 1 a, b, c, d, g, h, and i and 2 a under "Program Element Objectives and Guidance" on pages VII-16 and 17). The addition of a separate section for this purpose would clarify the relationship among these offices and the CNWRA.

The Energy Policy Act of 1992 is expected to affect some of the activities identified in this HLNWRP. The following cites some examples. The Department of Energy (DOE) may determine that distributed interim storage facilities will be necessary, and may petition the NRC to license more than one Monitored Retrievable Storage (MRS) site. The possibility that the Environmental Protection Agency (EPA) standard for HLW disposal may become a dose-based standard will have direct consequences on the development of any implementing and conforming amendments for 10 CFR Part 60. Similarly, the possibility that a long-term monitoring program may be required at the Yucca Mountain site may alter the current regulatory requirements associated with human intrusion and repository performance confirmation and monitoring. Separate comments on this matter were also provided in a letter from B. Sagar to M. Knapp dated November 24, 1992.

The review of DOE's Draft Environmental Impact Statement for the MRS is associated with a resource increase in FY94, and the content of the preceding paragraph will affect this activity.

Among the many factors affecting the NRC's HLW Program during the planning horizon in the HLNWRP are the following: (i) the potential use of multipurpose, i.e., "cradle to grave," canisters and horizontal emplacement of robust canisters within backfilled repository drifts, (ii) accelerated excavation of the exploratory studies facility by drill and blast and by tunnel boring machine, and (iii) significantly increased on-site surface and underground investigations.

The HLNWRP FY93-97 Five-Year Plan Detailed Resource Report dated August 24, 1992 does not offer any budget figures for FY96-97, and guidance provided the CNWRA indicates a "flat budget" with the exception of any inflation factor for these years. It is understood that this budget does not include "carryover" monies as reported in the CNWRA's operations/research project plans for FY93-94. The CNWRA anticipates exhausting all "carryover" monies during these two fiscal years; consequently the FY95-97 "flat budgets" will create major funding concerns for staff and program continuity during these years.

### **3 SPECIFIC COMMENTS**

The following comments reflect our review of Paragraphs 1 and 2 under "Program Element Objectives and Guidance" on pages VII-10 through 12.

**Paragraph 1 c. Page VII-10:**

It appears that NRC utilizes 'invited meetings' almost exclusively to pursue "an active interaction and cooperation with the State of Nevada, affected counties and Indian tribes, and interest groups." The CNWRA is unaware of any other current pre-licensing activities with these parties.

**Paragraph 1 j. Page VII-11**

The CNWRA assumes the reference to "the RES standard format and content guide for the licensing application" to mean the Format and Content Regulatory Guide being developed under the guidance of the Division of High-Level Waste Management (DHLWM). Clarification should be made of this phrase, since major DHLWM and CNWRA resources are dedicated to work in this area.

**Paragraph 1 n. Page VII-11**

The DOE, in a presentation made by H. Pomrehn to the NRC on December 18, 1992, acknowledged that the 1998 date for receipt of HLW at an MRS could not be met. It is unlikely that the DOE will submit a license application for an MRS facility in FY95 as stated in this paragraph.

**Paragraph 1 o. Page VII-11**

The NRC "inspection program" supporting "the review of the HLW repository from site characterization through construction, operations and closure" is illustrative of a strategic program. Since the CNWRA is unaware of any specific activities in this area at the present time and has not been tasked to assist the NRC in the conduct of these activities, and it is anticipated that this program will be initiated some time in the future.

The following comments reflect our review of the paragraphs under "Planned Accomplishments (For FY 1993-1995)" on pages VII-12 through 14.

**Second Paragraph Page VII-13**

An examination of the current operations plans suggests that approximately 25 compliance determination methods should be completed each year beginning FY94 and ending FY97, rather than the 14 indicated here.

**Third Paragraph Page VII-13**

Among the repository subsystem models, listed in this paragraph, that are scheduled for development and revision, those related to 'coupled processes' and geochemistry will be accomplished between FY93 and FY95.

**Fifth Paragraph Page VII-13**

The term "gaps" relative to those "in the postclosure parts of 10 CFR Part 60 and the EPA Standard" should be replaced, in our judgment, by the word "uncertainties."

**Eighth Paragraph Page VII-14**

The NRC has not advised the CNWRA of any schedule "for review and evaluation of new transportation package designs from DOE for shipping HLW as required by the Nuclear Waste Policy Act." No CNWRA resources have been allocated to this activity, and it is assumed that such review and evaluation will be accomplished by NRC staff. When such schedule is made available for its participation, the CNWRA views this activity as part of Task 1 of the Engineered Barriers System (EBS) Element.