

JUN 30 1993

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THRU: Shirley L. Fortuna
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FROM: John T. Buckley, Program Element Manager
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Division of High-Level Waste Management, NMSS

SUBJECT: REVISIONS TO TASK 2 OF THE PERFORMANCE ASSESSMENT PROGRAM
ELEMENT PLAN

This memorandum requests that Task 2 of the Performance Assessment (PA) Program Element Plan (PEP) be revised by adding Subtask 2.7, "Technical Support on NAS Study of the Technical Bases for the Yucca Mountain Standards." A description of Subtask 2.7 is enclosed. It is estimated that the level of effort required for Subtask 2.7, Activity 1, will be approximately 12 staff weeks. Level of effort estimates for Activities 2, 3, 4, and 5 will be provide at a later date.

The funds to pay for work done under Subtask 2.7, Activity 1, should be re-programmed from Task 1, "Prelicensing Activities," of the Performance Assessment Element. To date, the FY93 Task 1 activities have required less effort than originally anticipated. For instance, the SCP Progress Report and many study plans have not contained sufficient information in the area of PA to warrant Center for Nuclear Waste Regulatory Analyses (CNWRA) review. According to the CNWRA, there is approximately \$150k remaining in Task 1 for FY93 activities. It is envisioned that \$50k should be enough to complete the required Task 1 activities through the end of FY93. Please transfer the remaining \$100k to Task 2 to cover Subtask 2.7 activities.

If you have any questions, please contact me at 504-2513.

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John T. Buckley, Program Element Manager
Performance Assessment Program Element
Division of High-Level Waste Management, NMSS

Enclosure:
As stated

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REVISED PEP FOR PERFORMANCE ASSESSMENT

SUBTASK 2.7: TECHNICAL SUPPORT ON NAS STUDY OF THE TECHNICAL BASES FOR YUCCA MOUNTAIN STANDARDS

I. BACKGROUND

As directed by the Energy Policy Act of 1992, the National Academy of Sciences (NAS) Committee on Technical Bases for Yucca Mountain Standards has initiated a review of the technical bases of high-level waste disposal standards. The first meeting was held on May 27-29, 1993, during which the NRC staff was asked to provide information on specific issues to be considered by the Committee.

The NAS will be considering a range of issues associated with their charge. This is to include issues related to the prediction of the probability of natural events. The charge itself, requires consideration of the following points:

- * Would a health-based standard, based upon doses to individual members of the public, will provide a reasonable standard for the protection of the health and safety of the general public.
- * Whether it is reasonable to assume that a system for post-closure oversight of the repository can be developed (based upon active institutional controls) that will prevent an unreasonable risk of breaching the repository's engineered or geologic barriers or increasing the exposure of individual members of the public to radiation beyond allowable limits.
- * Whether it is possible to make scientifically supportable predictions of the probability that the repository's engineered or geologic barriers will be breached as a result of human intrusion over a period of 10,000 years.

The technical support from the CNWRA arising from the NAS study will comprise subtask 2.7.

II. DESCRIPTION

Activity 1 - Health-Basis of Standards

The next meeting, scheduled for August/September 1993, will concentrate upon health-based standards. The committee is charged with determining whether a health-based standard, based upon doses to individual members of the public, will provide a reasonable standard for the protection of the health and safety of the general public. (EPA)

Through the conclusion of the first meeting, the following issues related to the health bases of the standards have been raised, by interested parties, for consideration by the Committee:

- Health-based vs. technology-based standards (NRC):
 - The linear model for health effects of radiation doses (ANS)
 - Comparison of dose levels to background radiation (Environmental)
 - Consideration of individual sensitivities, e.g. child vs. adult, to radiation and radionuclides (Environmental)
- Individual vs. population protection (NRC):
 - The type of individual dose standard that may be used (i.e. probabilistic, deterministic, expected value, maximum individual, average of the critical population group, etc.) (EPA, NRC, Industry, Environmental, Nevada, Nevada Counties)
 - The uncertainty in the correlation between individual and collective dose (EPA, NRC)
 - The impact of different time periods of assessment for the standard and the relationship of time period to individual dose, collective dose, or other types of limits (EPA, NRC, DOE, Industry, ANS, Environmental, Nevada Counties, Public)
 - Whether a defined "static biosphere" assumption is desirable to make a dose (or risk) standard workable and, if so, the nature of the required assumptions (EPA, NRC, Environmental, Nevada Counties)
- Fundamental vs. derived standards (NRC):
 - The protectiveness of an individual dose standard, a population dose standard, or other types of limits the standard might impose in light, or the absence, of the possibility of natural or human-initiated disruptive events (EPA)

The Center is requested to provide technical support on the health basis of HLW standards for the NRC's participation in the NAS study of the technical bases for the Yucca Mountain standards. The CNWRA should begin with a review of the regulatory history for Part 20, Part 60, and Part 61, with attention paid to the above issues. The review, to be completed by August 20, will summarize, and include cited text, the technical and policy bases for the Commission's regulatory decisions relevant to the Committee's review of the issues introduced previously. The CNWRA should then evaluate the regulatory history and provide recommendations on the issues important in the context of the NAS study of the health bases for the Yucca Mountain standards. Any proposed departures from previous agency positions, relevant to these issues, should be accompanied with justifications, including their technical basis. In addition, the CNWRA should provide the references in the Part 60 statements of considerations that relate to the persistence and effectiveness of institutional controls. The review product will take the form of a IM letter report. Continued support in health physics will be requested by the NRC throughout the NAS study. Participation will be needed at the next NAS meeting in August or September and later meetings directed at the health basis of the standards. The support will entail a review of the NAS literature survey, when available.

Activity 2 - Institutional Controls

The work activities to be accomplished under this activity will be identified at a later date.

Activity 3 - Human Intrusion

The work activities to be accomplished under this activity will be identified at a later date.

Activity 4 - Natural Disruptive Events

The work activities to be accomplished under this activity will be identified at a later date.

III. ESTIMATED LEVEL OF EFFORT

Activity 1. 12 staff weeks

Activity 2. TBD

Activity 3. TBD

Activity 4. TBD

IV. Products/Schedule

Activity 1 - Health-Basis of Standards

IM: Critical (October 1, 1993)

The CNWRA will thoroughly review and evaluate the history, rationales and their supporting arguments, and recurring themes found in the NRC regulatory history. The CNWRA should prepare recommendations on the issues related to a health-based standard explaining and providing a technical basis for any departure from previous agency positions or comments related to these issues. The review should include any relevant technical reports or papers prepared by NRC staff, contractors, or others. This should all be done with cognizance of implementation issues inherent in a licensing hearing and with a perspective congruent to the NRC's role as a regulatory agency. In addition, the report should contain the appropriate text from references in the Part 60 statements of considerations which relate to the persistence and effectiveness of institutional controls.

IM: (TBD)

A review is to be made of the literature survey, conducted by the NAS contractor, that includes the health-basis of current standards and regulatory approaches. Additional direction on this IM will be provided at a later date.

Activity 2 - Institutional Controls

The milestones to be accomplished under this activity will be identified at a later date.

Activity 3 - Human Intrusion

The milestones to be accomplished under this activity will be identified at a later date.

Activity 4 - Natural Disruptive Events

The milestones to be accomplished under this activity will be identified at a later date.