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October 26, 1989

Mr. Thomas J. Kenyon
Standardization and Life Extension
Project Directorate
Division of Reactor Projects III, IV, V
and Special Projects
Office of Nuclear Regulation
U.S. Nuclear Regulatory Commission
Washington, DC 20555

SUBJECT: NRC Project 669, ALWR Requirements Document Chapter 10,
"Man-Machine Interface Systems"

Dear Mr. Kenyon:

Enclosed are 30 copies of ALWR Requirements Document 10, "Man-Machine Interface Systems," for your review. Also enclosed are 30 copies of a topic paper on reactor vessel level instrumentation. Since this paper is linked with requirements of Chapter 10, we have submitted it for review at this time. This topic paper will ultimately be incorporated in the final rollup version of Chapter 4 (Reactor Systems) which is presently being prepared by the staff. Ten additional copies of both documents are being transmitted directly to the NRC Document Control Desk.

Chapter 10 contains requirements for the instrumentation and control systems provided as part of an ALWR plant. This includes the plant instrumentation and controls, the protection system, the communications system, and support computer systems, as well as monitoring and control stations.

A key objective of the ALWR program is to improve the human factors aspects of the design. Human factors are a priority consideration in the design of the ALWR Man-Machine Interface Systems (M-MIS) for both the operators and plant maintenance personnel. In Chapter 10 we have developed requirements for an advanced main control room based on modern digital technology which provides a consistent set of integrated alarms, displays, and controls. The M-MIS requirements are highly coordinated with the overall plant design and are consistent with a realistic assessment of operator capabilities and limitations. The instrumentation and control systems are required to be highly reliable and defend against propagation of faults. In addition, they will incorporate built-in validation, testing, and diagnostic features and will be designed and built considering the need for maintenance throughout their life cycle. Chapter 10 has been reviewed thoroughly by utilities and industry and approved by the ALWR Utility Steering Committee.

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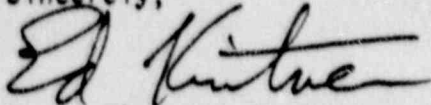
Submittal of this chapter completes the transmittal of ALWR Evolutionary Plant requirements Volume 10 to the NRC. For your information, we expect the Passive Plant (Volume III) version of Chapter 10 to be very similar to the enclosed evolutionary version; Sections 1-6 of Chapter 10 will be virtually identical.

We consider your timely review of this chapter to be extremely important to the overall success of the ALWR program. An expeditious NRC review will permit us to submit Volume II rollup promptly and to develop Passive Plant requirements efficiently. In addition, these ALWR requirements for the M-MIS will be challenging to NSSS vendors and taxing of industry resources. An expeditious NRC review will be extremely valuable to NSSS vendors engaged in passive plant design development under DOE contract, evolutionary plant detailed engineering, design certification submittals, simulator development, etc.

We would appreciate the opportunity to meet with the NRC Staff in the near future to provide an overview discussion of the requirements in Chapter 10. Gary Vine of the EPRI ALWR staff will contact you soon to make arrangements for this meeting.

Please call Gary Vine at EPRI, (415) 855-8903, if you have any questions.

Sincerely,



E. E. Kintner, Chairman
ALWR Utility Steering Committee

Enclosures: ALWR Requirements Document Chapter 10 (30)
Topic Paper on Reactor Vessel Level Instrumentation (30)

cc: ALWR Steering Committee
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