

September 11, 1991

Project No. 669

Mr. E. E. Kintner, Chairman  
Advanced Light Water Reactor  
Steering Committee  
GPU Nuclear Corporation  
100 Interpace Parkway  
Parsippany, New Jersey 07054

Dear Mr. Kintner:

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION ON EPRI ADVANCED LIGHT WATER  
REACTOR (ALWR) REQUIREMENTS DOCUMENT FOR PASSIVE PLANT DESIGNS -  
OFFICE OF NUCLEAR REGULATORY RESEARCH (TAC NO. 77862)

As a result of its review of Volume III of the EPRI ALWR Requirements Document, submitted by letter dated September 7, 1991, the staff has determined that it needs additional information in order to complete its review of the design criteria. The additional information is needed in areas addressed during the Office of Nuclear Reactor Research's review of Appendix B to Chapter 1, as discussed in the enclosure to this letter.

The reporting and/or recording requirements contained in this letter affect fewer than ten respondents; therefore, OMB clearance is not required under P.L. 96-511.

Please respond to this request within 60 days of the date of receipt of this letter. If you have any questions regarding this matter please contact the project manager, J. Wilson, at (301) 492-1118.

Sincerely,

*Original Signed by*  
James H. Wilson, Project Manager  
Standardization Project Directorate  
Division of Advanced Reactors  
and Special Projects  
Office of Nuclear Reactor Regulation

Enclosure:  
As stated

cc w/enclosure:  
See next page

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ALWR Utility Steering Committee

Project No. 669  
EPRI

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REQUEST FOR ADDITIONAL INFORMATION  
EPRI ALWR REQUIREMENTS DOCUMENT FOR PASSIVE PLANT DESIGNS  
OFFICE OF NUCLEAR REGULATORY RESEARCH

EPRI listed all generic issues whose resolution was considered in the design of the passive ALWR in Table B.3-1 of Appendix B. In addition, a footnote to that table lists other generic issues that EPRI "...determined, through the NUREG-1197 selection criteria, to be not technically relevant to the ALWR design...."

Based upon review of that table and footnote, the staff has identified the following additional information that is needed in order to proceed with its review.

1. A number of issues are listed in Table B.3-1 and discussed in Section 3 of Appendix B. For each of the three subsets of these issues described below, EPRI should provide a cross-index by individual issue, indicating specific additional sections of the Requirements Document that are directly related to the resolution of the issue in the passive design.

- a. Those issues where EPRI's discussion for the passive plant is the same as for the evolutionary plant include the following:

|        |   |
|--------|---|
| GI C-8 | MSL Leakage Control                         |
| GI-15  | Radiation Effects on RV Supports            |
| GI-29  | Boli Degradation                            |
| GI-57  | Fire System Inadvert Actuation              |
| GI-75  | Generic Implications of ATWS at Salem       |
| GI-79  | Unanalyzed RV for Natural Cooldown Cycles   |
| GI-113 | Dynamic Testing of Large Hydraulic Snubbers |

- b. Those issues where EPRI's discussion for the passive design is substantially different from evolutionary design include the following:

|         |   |
|---------|---|
| GI P-17 | Criteria for Safety Related Operator Actions                                  |
| GI-70   | PORV & BV Reliability   |
| GI-84   | PORVs on CE Plants  |
| GI-87   | HPCI Turbine SL Break w/o Isolation   |
| GI-94   | More LTOP Protection  |
| GI-105  | Inter-System LOCA   |
| GI-121  | Hydrogen Control in Large Dry Containment                                     |
| GI-128  | Electrical Power Issues   |
| GI-130  | SW Failure at Multi-Plant Sites   |
| HF 5.1  | Local Control Stations  |
| HF 5.2  | Review Criteria for Human Factors Aspects of ADV Controls and Instrumentation |

- c. EPRI's discussion of some issues has not yet been reviewed by the staff for the evolutionary or the passive plant, because the material was not cited as being relevant to the issue in the evolutionary Requirements Document (i.e., no cross-index was provided for the evolutionary plant similar to that being requested for the passive plant). For these issues, the cross-index of issues with Requirements Document sections should be provided for both the passive and the evolutionary plants. These include:

GI-83 Control Room Habitability  
GI-1.D.3 Safety System Status and Monitoring

2. A number of issues listed in the footnote of Table B.3-1 were considered by the staff during review of the evolutionary Requirements Document. However, some issues in the passive plant were "...determined, through the NUREG-1197 selection criteria, to be not technically relevant to the ALWR design...." No further discussion of these issues is presented in Section 3 of Appendix B of the Passive Plant Requirements Document. EPRI should document the reasons for such "selection for non-consideration," or at minimum should reference within Appendix B, Section 3, specific other sections and pages where such documentation can be found. These issues include:

GI-23 RC Pump Seals  
GI B-56 Diesel Generator Reliability  
GI-135 SG & SL Overfill  
GI B-55 Target Rock S/R Valves  
GI-106 Piping Inflammable Gases  
HF 4.4 Guides for Upgrading Other Procedures

3. A number of issues considered by the staff for the evolutionary plant are neither discussed nor listed as "irrelevant" for the passive plant. EPRI should provide a discussion of resolution of these issues for the passive plant design, or should provide a discussion explaining their irrelevance to the design. These include:

USI A-17 System Interactions  
USI A-29 Sabotage  
USI A-40 Seismic Criteria  
USI A-44 Station Blackout  
USI A-45 Decay Heat Removal  
USI A-46 Seismic Qualification  
USI A-47 Safety Implications of Control Systems  
USI A-48 Hydrogen Control in Ice & MK-III Containments  
USI A-49 PTS  
GI B-5 Buckling of Steel Containments  
GI B-29 Ultimate Heat Sinks  
GI-B-32 Ice Effects

GI D-2 ECCS Improvements  
GI-2 Failure of Protection Devices  
GI-32 Flow Block (clams)  
GI-43 Air System Reliability  
GI-51 Reliability of Open Cycle Cooling System  
GI-76 Instrumentation and Control Power Interactions  
GI-82 Beyond DBAs in Spent Fuel Pools  
GI-91 DeLaval Diesel Generator Main Crank Failure  
GI-93 Steam Binding of Auxiliary FW Pumps  
GI-96 RHR Suction Valve Testing  
GI-99 RCS/RHR Suction Valve Testing  
GI-101 BWR Water Level Redundancy  
GI-103 Maximum Precipitation  
GI-107 Main Transformer Failure  
GI-110 Protection Devices on ESF Equipment  
GI-115 Reliability of W Solid State Protection Systems  
GI-116 Accident Management  
GI-117 Allowable Outage Times  
GI-118 Tendon Anchor Failure  
GI-120 On-Line Testing of Protection Systems  
GI-124 EFW Design  
GI-127 Testing & Maintenance of Manual Valves  
GI-132 RHR Pumps in Containment  
67.5.1 Davis Besse Event SG Reassessment  
67.5.2 Davis Besse Event SG Reassessment  
122.1a Davis Besse Event EFW Reliability  
122.1b Davis Besse Event EFW Reliability  
122.1c Davis Besse Event EFW Reliability  
122.2 Initiate Feed & Bleed  
125.1.3 Design Basis Event Long Term Actions  
125.1.4 Design Basis Event Long Term Actions  
125.1.5 Design Basis Event Long Term Actions  
125.1.6 Design Basis Event Long Term Actions  
125.11.7 Automatic FW Isolation  
125.11.11 Design Basis Event Long Term Actions  
125.11.13 Design Basis Event Long Term Actions  
11.E.4.3 Containment Design Integrity Check  
11.E.6.1 In-Situ Valve Testing