52-001

GE Nuclear Energy

ABWR

Date 7/8/92

Fax No. —

To

Chet Poslusny 11H3

This page plus 8 page(s)

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Subject USI/GSI

Message Chet -

Attached is our minimum effort on responding to your May 26, 1992 letter on USIs/GSIs. Please forward this to your subcontractor. We don't think its worthwhile to adopt the CE format.

Jack

280070

Change NRC PDR w/out encl
PDL Stegbauer
D050 1/1
Per C. Poslusny

GE Nuclear Energy

July 7, 1992

To: Jack Fox

From: Ian See

Subject: GSI & USI Resolution Comments for Table 19B.1-2

The USI and GSI listed in Table 19B.1-2 were reviewed and modified as necessary to show ABWR SSAR resolutions. The issues requiring modifications were those that referenced Tables 1.8-19, 1.8-20, and 1.8-22 for resolution. Although these tables support the NRC resolutions, they do not address specific ABWR design commitments.

Each issue was reviewed and referenced to the most appropriate SSAR section. The following sections clarify several issues listed in the table. This information will be incorporated into the SSAR as appropriate.

ISSUE 15 Radiation Effects on Reactor Vessel Supports:
The ABWR uses a skirt type vessel support which is located below the bottom of active fuel. Since the skirt is outside any high fluence regions, radiation embrittlement is not anticipated.

ISSUE 43 Reliability of Air Systems:
In addition to the specific SSAR sections describing the design of air systems, several COL applicant actions are required. These actions include verification that maintenance practices, emergency procedures and training are adequate.

ISSUE 87 Failure of HPCI Steam Line W/O Isolation:
Although the ABWR design does not use HPCI steam lines, the issue is relevant to other systems including RWCU and RCIC. The in-situ full flow, full differential pressure testing many not be possible since DBA conditions may not be achieved. Therefore, in-situ testing may be performed at a lower differential pressure and flow than DBA conditions. However, the ABWR ITAAC does require verification of certified vendor documents that valves close against maximum differential pressure.

ISSUE A-10 BWR Feedwater Nozzle Cracking:
Although not specifically stated in the SSAR, the feedwater nozzle is designed to minimize cracking concerns. The nozzle with thermal sleeve is shown in Figure 20-1 of the Reactor Vessel Equipment Requirement Specification. The nozzle utilizes a welded in double thermal sleeve which prevents any leakage between the thermal sleeve and nozzle which may cause high cycle fatigue. This leakage induced cycling fatigue posed problems in previous designs. The purpose of the second outer thermal sleeve is to protect the nozzle bore from the shedding of subcooled water from the inner thermal sleeve. Successful welded designs have been used in overseas BWRs without any cracking problems.

ISSUE A-16 Steam Effects on BWR Core Spray Distribution:
The ABWR does not have a core spray. The core spray has been replaced with a core flooder design which eliminates the concern of spray distribution.

ISSUE A-28 Increase in Spent Fuel Pool Storage Capacity:
This issue regards the development of acceptance criteria for converting spent fuel storage pools to a high density design. Since the ABWR is originally designed for high density fuel as referenced in Table 19B.1-2, this issue is not applicable.

ISSUE A-33 NEPA Review of Accident Risks:
GE has supplied two documents to the NRC supporting its obligations under the National Environmental Policy Act NEPA. The first document is "Environmental Information Submittal in Support of a Rulemaking Proceeding Certifying the ABWR Design under Part 52." This document provides environmental information to facilitate the Commission's preparation of an environmental assessment associated with the proposed action, namely issuance of amendments to Parts 51 and 52 in a unitary rulemaking proceeding for certification of the ABWR design and closure of severe accidents issues for the ABWR design. The second document is "Technical Support Document for Amendments to 10 C.F.R. Part 51: Consideration of Severe Accidents under NEPA for Plants of ABWR Design." This document provides the technical basis for amendment to Part 51 to close severe accident issues under NEPA. The amendments would provide that further modifications to the ABWR design through the addition of one or more Sever Accident Mitigation Design Alternatives (SAMDAs) are not necessary in order to satisfy NEPA, and that further NEPA consideration of severe accidents is not necessary in preparing applications or in issuing licenses for ABWR plants.

ISSUE A-39 Determination of SRV Pool Dynamic Loads and Temperature Limits in BWR Containment:
The issue will be included in SSAR appendix 3B. The ABWR design does not specify plant operation restrictions on steam mass flux vs. local pool temperature map. Recent studies (BWR Owners Group activity) have concluded that such plant operation restrictions are no longer needed. A previous GE transmittal (FAX, 6/1/92, Fox to Poslusny) addresses and documents this issue.

ISSUE B-55 Improved Reliability of Target Rock Safety Relief Valves:
Although this issue is vendor specific and becomes a COL applicant action item, the concern over pilot actuated relief valves has been addressed. The ABWR design intends to use direct actuating safety relief valves (SRVs) as implied in SSAR subsection 5.2.2.4. Direct Actuating valves eliminate the problems found in the Target Rock SRV design.

ISSUE B-56 Diesel Reliability:
In addition to the ABWR design items referenced in Table 19B.1-2, the COL applicant is required to address NUREG/CR 0660 to resolve this issue. SSAR subsection 8.1.4 addresses the COL applicant actions.

ISSUE B-70 Power Grid Frequency and Effect on Primary Reactor Coolant Pumps:
This issue will be incorporated into SSAR Chapter 8. This will include establishing a design requirement that the flywheel for the MG set be designed to provide sufficient energy to maintain operation of the ASDs for three seconds during a coast down that starts at no more than 58 cycles per second. This frequency was chosen because power systems can be expected to experience and recover from situations where the frequency has dropped as low as 58.2 cycles per second. Also, a trip of the supply breaker on low MG set speed and reverse power flow will be provided.

ISSUE C-01 Assurance of Continued Long Term Capability of Hermetic Seals of Instrumentation and Electrical Equipment:
In addition to the sections listed in the ABWR SSAR, there is a COL applicant action item to provide surveillance testing of the equipment.