



General Electric Company  
175 Currier Avenue, San Jose, CA 95126

April 2, 1993

Docket No. STN 52-001

Chet Poslusny, Senior Project Manager  
Standardization Project Directorate  
Associate Directorate for Advanced Reactors  
and License Renewal  
Office of the Nuclear Reactor Regulation

Subject: Submittal Supporting Accelerated ABWR Review Schedule - **Chapters 3 and 5**  
**DFSER Items**

Dear Chet:

Attachment A addresses three DFSER items for close out: (1) Item 3.9.2.3-2 (Confirmatory), on Page 3-64 of the DFSER, (2) Item 3.9.2.3-1 (COL Action), on Page 3-65, and (3) Item 5.2.4-1 (Confirmatory), on Page 5-13.

Please provide a copy of this transmittal to Shou Hou, Dave Terao, Jim Brammer and Mark Rubin.

Sincerely,

Jack Fox  
Advanced Reactor Programs

cc: Norman Fletcher (DOE)  
Tony James (GE)  
Roy Louison (GE)  
Son Ninh (NRC)

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## DFSER ITEMS

(1) Item 3.9.2.3-2 (Confirmatory), May 10, 1992 Audit Commitments

GE agreed to three items per the May 10, 1992 Audit Summary. These items have been included for record as follows:

- (a) *Revise ITAAC Table 2.1.1 dated January 17, 1992 per Enclosure 3 of the audit summary.* ITAAC submittal dated June 1, 1992 included the information.
- (b) *Include key dimensions, major design parameters and construction tolerances to the RPVS design description and ITAAC.* ITAAC submittal dated June 1, 1992 included the information; Section 1.1 was referred to in RPVS ITAAC (Section 2.1.1) for major plant design parameters. The draft of ITAAC sections scheduled for resubmittal in the near future includes the parameters in Section 2.1.1 per the attached markups.
- (c) *Update MPL-18NS07A03 list to include the referenced documents in the audit summary.* The attached pages of MPL list have been updated accordingly, except for including References 7 and 12. Reference 7 (Katsuta Engineering Laboratory Report) was not an ABWR certification document; it was presented for information only. Reference 12 was a memo not suitable for the MPL; the memo is a part of our design record file.

(2) Item 3.9.2.3-1 (COL action), Vibration Assessment Test Report

In reference to the DFSER paragraph on Page 3-65, which contains this item, GE indicated in the audit that the test results from K6 Plant in Japan will be used, if available, for updating vibration prediction and planning the vibration test of the first reactor constructed under certification. However, as documented in SSAR Section 3.9.7.1 on Page 3.9-45 (Amendment 23), the first COL applicant will meet all requirements of Regulatory Guide 1.20; this COL license information commitment is not predicated in any way upon having K6 Plant data available. Therefore, SSAR Section 3.9.7.1, 3.9.2.3 or 3.9.2.4 need not be revised.

(3) Item 5.2.4-1 (Confirmatory), ITAAC - Add Discussion of PSI and 89 Code

The following revised SSAR section addresses the issue of preservice inspection (PSI) in accordance with the 1989 edition of the Code as discussed in last paragraph on Page 5-13 of the DFSER. The SSAR Section 5.2.4 on Page 5.2-15.1 (Amendment 23) addresses the design to perform PSI and the Code edition to be used. The SSAR Section 5.2.6.2 on Page 5.2-28 (Amendment 26) requires COL applicants to submit the complete plant-specific ISI/PSI program. Tier 1 design description and ITAAC include only top level definitive information and not detailed COL action items; therefore, the subject issues are not included in ITAAC Section 2.1.1, Reactor Pressure Vessel System.

## 2.1 Nuclear Steam Supply

### 2.1.1 Reactor Pressure Vessel System

#### *Design Description*

The Reactor Pressure Vessel (RPV) System consists of (1) the reactor pressure vessel and its appurtenances, supports and insulation, and (2) the reactor internals enclosed by the vessel, excluding the core, in-core nuclear instrumentation, reactor internal pumps, and control rod drives.

The reactor coolant pressure boundary (RCPB) portion of the RPV System retains integrity as a radioactive material barrier during normal operation and following abnormal operational transients and design basis accidents (DBAs).

Certain RPV internals support the core, flood the core during a DBA, and support instrumentation utilized during a DBA. Other RPV internals direct coolant flow, separate steam, hold material surveillance specimens, and support instrumentation utilized for normal operation.

The RPV System provides guidance and support for the control rod drives (CRDs). It also admits and distributes the sodium pentaborate from the Standby Liquid Control (SLC) System.

The RPV System restrains the CRD in order to prevent the ejection of the control rod connected with the CRD in the event of a postulated failure of the RCPB associated with the CRD housing. A restraint is also provided for the reactor internal pump (RIP) in order to prevent it from becoming a missile in case of a postulated failure of the RCPB associated with the reactor internal pump.

The <sup>Principal</sup> major plant design parameters are listed in <sup>Table 2.1.1e.</sup> Section 1.1. The configuration of the RPV System is shown on Figure 2.1.1a, with key dimensions presented in Table 2.1.1b, and the acceptable variations in these dimensions in Table 2.1.1c. The RPVS parameters (postulated break areas) used in LOCA analyses are identified in Table 2.1.1d.

#### *Reactor Pressure Vessel, Appurtenances, Supports and Insulation*

The reactor pressure vessel (RPV), as shown schematically in Figure 2.1.1a, consists of a vertical, cylindrical pressure vessel of welded construction, removable top head and head closure bolting and seals. The vessel includes the cylindrical shell, flange, bottom head, reactor internal pump (RIP) casings, penetrations, brackets, nozzles, venturi shaped flow restrictors in the steam outlet nozzles, and the shroud support, which includes the pump deck forming the partition between the RIP suction and discharge. The shroud support is an assembly consisting of a short vertical cylindrical shell, a horizontal annular

Table 2.1.1e: Principal Plant Design Parameters

Description	Value
Rated Power (MWt)	3,926
Rated steam flow rate, kg/hr at 215.6°C (FW temp)	$7.64 \times 10^6$
Rated core coolant flow rate (kg/hr)	$52.2 \times 10^6$
RCPB design pressure (kg/cm <sup>2</sup> g)	87.9
RCPB design temperature (°C)	302
Number of fuel assemblies	872
Number of control rods	205
Number of internal pumps	10

GENERAL ELECTRIC COMPANY

FOR:  
(REVIEW ONLY)  
HPL 298X301CP

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TITLE: PLANT GENERAL REQUIREMENTS

PROJECT: ABWR CERTIFICATION PROGRAM

ITEM NO.	NAME	DESCRIPTION	IDENTIFICATION	DOC E C			DOCUMENT TYPE	GROUP NUMBER AND QUANTITY		A R C
				STAT	C	SRC		GOOI		
A11	5020AD	RAACT HEAT DECAY PWR DATA	23A5750	SIM		SP	DESIGN BASES		X	
A11	50309	CORE COOLANT HYDRAULICS	24A1648	SIM		SP	DESIGN REQMT		X	
A11	50409	REAC SYS HEAT BAL	23A4562	SIM B		SP	DESIGN SPEC		X	
A11	5040AD	REAC SYS HEAT BAL	23A4562AA	SIM B		SP	DATA SHEET		X	
A11	50509	GETAB OPERATING LIMITS	386HA981	SIM		SP	DESIGN REQMT		X	
A11	5050AC	GETAB OPER LIMITS ANAL	299X700-211	SIM		SP	DESIGN RPRT		X	
A11	50559	KF/KP ANALYSIS	299X701-151	SIM		SP	DESIGN ANAL		X	
A11	50609	REAC INTL PRESS DIFF	386HA984 ← RIO	SIM		SP	DESIGN REQMT		X	
A11	50709	RADIATION SOURCE TERMS	299X700-025	SIM B		SP	DESIGN SPEC		X	
A11	50809	HVAC HEAT LOAD	299X700-026	SIM B		SP	DESIGN SPEC		X	
A11	5080AD	HVAC HEAT LOAD	299X700-027	SIM B		SP	DESIGN SPEC		X	

FINAL SECTION

Attachment A  
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TITLE: REACTOR PRESS VSL SYSTEM

GENERAL ELECTRIC COMPANY

FOR: JOE/RVW/PAM  
(REVIEW ONLY)  
MPL 29BX480CP

SECT A REV.

PROJECT: ABWR CERTIFICATION PROGRAM

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ITEM NO.	NAME	DESCRIPTION	IDENTIFICATION	DOC E C STAT C C SRC	DOCUMENT TYPE	GROUP NUMBER AND QUANTITY	A R C C C D
B11 20209	REACTOR		796E470P001	SIM	SP	INTFC CONT X	N
B11 20309	RPV LOADING (U.S.REQMTS)		213AB243	SIM B	SP	SPEC SUPPORT X	Y
B11 20409	REACTOR DYNAMIC MODEL		23A1482 ← R1	SIM	SP	DESIGN BASES X	N
B11 2040AD	REACTOR DYNAMIC MODEL		299X700-044	SIM B	SP	DESIGN SPEC X	
B11 20609	REACTOR DATA		213AB242	SIM B	SP	INFO DOC X	Y
B11 30219	REAC INT VIB PRED		23A6701 ← R1	SIM	SP	DESIGN RPRT X	N
B11 30319	NUCLEAR INSTR INSTALL		23A4993	SIM	SP	INSTL INSTN X	N
B11 30409	REAC CYCLES REF DES BASIS		796E243	SIM B	SP	SPIC SUPPORT X	Y
B11 3040AD	RPV NOZ TH CY-REF DES BAS		103E1408	SIM P	SP	SPEC SUPPORT X	Y
B11 3040AE	THERM CYC, RPV & NOZZLE		299X700-231	SIM	SP	DESIGN BASES X	
B11 30509	FMCRO SEISMIC SCRAM		23A6784	SIM	SP	DESIGN RPRT X	
B11 30609	CONT ROD ALIGNMENT STUDY		103E1184	SIM B	SP	INFO DOC X	N
B11 30709	REAC COMPONENTS LOADING		213A8716	SIM B	SP	SPEC SUPPORT X	N
B11 30809	MTL & PROC/INTRL CMPTS		23A6096	SIM B	SP	MAT&PROC DOC X	
B11 30909	MATL REACTOR INT COMP		23A6226	SIM B	SP	MATL SPEC X	
B11 31009	FAB/PROC INT COMP		23A6225	SIM B	SP	MATL SPEC X	
B11 40109	REAC PRESSURE VESSEL SYS		23A6012 ← R2	SIM B	SP	DESIGN SPEC X	N
B11 40219	REACTOR CORE INTFC		796E214	SIM	SP	INTFC CONT X	
B11 50209	REAC INTL PUMP PIN ANAL		23A6772	SIM	SP	STRESS RPRT X	
B11 50309	FUEL LIFT LOAD RED STUDY		23A6376	SIM	SP	DESIGN RPRT X	
B11 80109	REACTOR			LTR	SP	O&M MANUAL X	
B11 D0019	REACTOR		796E203	SIM A		ASSEMBLY 1	
B11 D0029	VESS & COMPONENTS		103E1504G001	SIM A	FBI	ASSEMBLY 1	
B11 D002AD	REACTOR INTERNALS		23A6120BA ← R14	SIM B	SP	PUR SPEC DS X	
B11 D002AT	VESSEL & COMPONENTS		23A6162	SIM	SP	INSTL SPEC X	
B11 D002AW	WELD INSP REQ REAC COMP		23A6237	SIM B	SP	MAT&PROC DOC X	
B11 D002AX	PURCHASE SPECIFICATION		23A6120 ← R13	SIM B	SP	PURCH SPEC X	
B11 D003+	REACTOR VESSEL D002/P002		795E997G001	SIM P	SP	ASSEMBLY 1	

Attachment A  
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TITLE: REACTOR PRESS VSL SYSTEM

GENERAL ELECTRIC COMPANY

FOR: JOE/RVW/PAM  
(REVIEW ONLY)  
MPL 298X480CP

SECT A REV. -

PROJECT: ABWR CERTIFICATION PROGRAM

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-----DESCRIPTION-----				DOC	C	C	DOCUMENT	-----GROUP NUMBER AND QUANTITY-----		A R C
ITEM NO.	NAME	IDENTIFICATION	STAT	C	C	SRC	TYPE	G001		C C D
B11	D0037	REACTOR VESSEL	23A1358	SIM	B	SP	EQ REQ SPEC	X		V
B11	D003AA	PUMP MOTOR CASING	796E432	SIM	P	SP	PRODUCT DWG	X		V
B11	D003AG	REACTOR VESSEL DETAILS	103E1417	SIM	P	SP	SPEC SUPPORT	X		
B11	D003AS	VESSEL INSTALLATION	23A6201	SIM		SP	INSTL SPEC	X		N
B11	D003AT	REACTOR VESSEL NOZZLES	112D3124	SIM	P	SP	SPEC SUPPORT	X		N
B11	D003BA	REACTOR PRESSURE VESSEL	23A6120AA	SIM	B	SP	PUR SPEC DS	X		N
B11	D003BM	REAC VESS HD CLOSE O-RING	23A6081	SIM	B	SP	DESIGN SPEC	X		N
B11	D003BN	RIP CASING STR ANAL RPT	299X700-002	SIM	B	SP	VENDOR DOC	X		
B11	D003BP	VESSEL IRRADIATION DATA	167B4185	SIM	B	SP	SPEC SUPPORT	X		V
B11	D003BR	RV BOTTOM HEAD PEN	796E222	SIM	P		SPEC SUPPORT	X		V
B11	D0049	SHROUD HD&STM SEPARATORS	796E983	SIM	P		PRODUCT DWG	1		M N
		D002/P003								
B11	D004AS	SHROUD HEAD & SEPARATORS	23A1439	SIM	B	SP	DESIGN SPEC	X		N
B11	D004AT	SHROUD HEAD & SEPARATORS		LTR		SP	STRESS RPRT	X		N
B11	D004AW	REACTOR INTERNALS	23A5775	SIM	B	SP	EQ REQ SPEC	X		N
B11	D0059	STEAM DRYER	796E411	SIM	N		PRODUCT DWG	1		M Y
		D002/P004								
B11	D005BB	STEAM DRYER	23A6132	SIM	B	SP	DESIGN SPEC	X		N
B11	D005BC	STEAM DRYER CORR STUDY	23A6731	SIM		SP	DESIGN RPRT	X		
B11	D005BD	STEAM DRYER	23A6703	SIM	N	SP	STRESS RPRT	X		
B11	D0099	CONTROL ROD	103E1527G001	SIM	A		ASSEMBLY	205		M Y
		D002/P005								
B11	D009AE	CONTROL ROD	23A6163	RVW	B	SP	EQ REQ SPEC	X		N
B11	D009AF	CONTROL ROD	23A6159	SIM	B	SP	DESIGN SPEC	X		N
B11	D009AS	CONT ROD STRESS ANALYSIS	23A6738	SIM		SP	STRESS RPRT	X		N
B11	D0109	CONTROL ROD GUIDE TUBE	112D3765G001	SIM	P		ASSEMBLY	205		M Y
		D002/P006								
B11	D010AY	CRD GT,ORF&PERIF FUEL SUP	23A1437AA	SIM	P	SP	DSGN SPEC DS	X		
B11	D010BA	CORE SUPPORT STRUCTURE	23A1437 <i>A-R9</i>	SIM	B	SP	DESIGN SPEC	X		
B11	D010BB	CONTROL ROD GUIDE TUBE		LTR		SP	STRESS RPRT	X		Y
B11	D0129	CRD IN-CORE HOUSING	23A1398	SIM	B	SP	DESIGN SPEC	X		
B11	D0169	IN-CORE HOUSING	112D4282P002	SIM	P		PRODUCT DWG	62		M Y
		D002/P008								
B11	D016AT	CRD IN-CORE HOUSING	23A1398	SIM	B	SP	DESIGN SPEC	X		Y
B11	D016AW	IN-CORE HOUSING	23A6736	SIM		SP	STRESS RPRT	X		
B11	D0179	IN-CORE GUIDE TUBE	137C8356P002	SIM	P		PRODUCT DWG	62		M Y
		D002/P009								
B11	D017AE	IN-CORE GUIDE TUBE & STUB	23A6788	SIM		SP	STRESS RPRT	X		V
B11	D017AT	IN-CORE GUIDE TUBE & STAB	23A1309	SIM	B	SP	DESIGN SPEC	X		V
B11	D0189	SHROUD HEAD BOLT	796E997G001	SIM	N	GM	ASSEMBLY	36		M Y
		D002/P035								

Attachment A  
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Attachment A  
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FOR: JOE/RVW/PAM  
(REVIEW ONLY)  
MPL 29BX340CP

GENERAL ELECTRIC COMPANY

TITLE: PLT STARTUP TEST EQUIPMENT  
PROJECT: ABWR CERTIFICATION PROGRAM

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GROUP NUMBER AND QUANTITY-----A R C  
C C D

ITEM NO.	NAME	DESCRIPTION	IDENTIFICATION
F41 E0039	REAC INTL VIB INSTR		103E1573
F41 E003AE	REAC INTL VIB MON EQPT		23A6254A R6
F41 E003AF	VIB DATA ACQUISITION		103E1575
F41 E003AS	REAC INT VIB MON SYS REM		23A6255A R5
F41 E003AT	REAC INT VIB MON SYS		23A6315A R4
F41 E003AW	VIBRATION INSTRUMENTATION		23A6715A R3
F41 E003AX	VIBRATION INSTRUMENTATION		23A6253A R2

DOC E C STAT C C SRC	DOCUMENT TYPE	G001
SIM P	INSTL DOC	T
SIM N	INSTL SPEC	X
SIM N	INSTL DOC	X
SIM B	DESIGN SPEC	X
SIM	TEST SPEC	X
SIM	STRESS RPRT	X
SIM B	DESIGN SPEC	X

FINAL SECTION