ArevaEPRDCPEm Resource

From: BRYAN Martin (EXT) [Martin.Bryan.ext@areva.com]
Sent: Friday, March 12, 2010 4:15 PM
To: Tesfaye, Getachew
Cc: DELANO Karen V (AREVA NP INC); BENNETT Kathy A (OFR) (AREVA NP INC); ROMINE Judy (AREVA NP INC); WILLIFORD Dennis C (AREVA NP INC)
Subject: Response to U.S. EPR Design Certification Application RAI No. 312, FSAR Ch. 9, Supplement 2
Attachments: RAI 312 Supplement 2 Response US EPR DC.pdf

Getachew,

AREVA NP Inc. provided a schedule for a technically correct and complete response to RAI No. 312 on November 20, 2009. AREVA NP submitted Supplement 1 to the response on January 22, 2010 providing an updated schedule for a response to this question. The attached file, "RAI 312 Supplement 2 Response US EPR DC.pdf" provides a technically correct and complete response to the single question, as committed.

Appended to this file are affected pages of the U.S. EPR Final Safety Analysis Report in redline-strikeout format which support the response to RAI 312 Question 09.04.02-3.

The following table indicates the respective pages in the response document, ""RAI 312 Supplement 2 Response US EPR DC.pdf," that contain AREVA NP's response to the subject questions.

Question #	Start Page	End Page
RAI 312 — 09.04.02-3	2	15

This concludes the formal AREVA NP response to RAI 312, and there are no questions from this RAI for which AREVA NP has not provided responses.

Sincerely,

Martin (Marty) C. Bryan
Licensing Advisory Engineer
AREVA NP Inc.
Tel: (434) 832-3016
Martin.Bryan@areva.com

From: DUNCAN Leslie E (AREVA NP INC)
Sent: Friday, January 22, 2010 8:59 AM
To: 'Tesfaye, Getachew'
Cc: BENNETT Kathy A (OFR) (AREVA NP INC); DELANO Karen V (AREVA NP INC); WILLIFORD Dennis C (AREVA NP INC)
Subject: Response to U.S. EPR Design Certification Application RAI No. 312, FSAR Ch. 9, Supplement 1

Getachew,

AREVA NP Inc. provided a schedule for a technically correct and complete response to RAI 312 on November 20, 2009. AREVA NP is unable to provide a response by the commitment date of January 28, 2010. The schedule for a technically correct and complete response to the one question in RAI 312 has been changed and is provided below:

Question #	Response Date

RAI 312 — 09.04.02-3	March 12, 2010

Sincerely,

Les Duncan
Licensing Engineer
AREVA NP Inc.
An AREVA and Siemens Company
Tel: (434) 832-2849
Leslie.Duncan@areva.com

From: Pederson Ronda M (AREVA NP INC)
Sent: Friday, November 20, 2009 6:18 PM
To: 'Tesfaye, Getachew'
Cc: BENNETT Kathy A (OFR) (AREVA NP INC); DELANO Karen V (AREVA NP INC); KOWALSKI David J (AREVA NP INC); WILLIFORD Dennis C (AREVA NP INC)
Subject: Response to U.S. EPR Design Certification Application RAI No. 312, FSARCh. 9

Getachew,

Attached please find AREVA NP Inc.'s response to the subject request for additional information (RAI). The attached file, "RAI 312 Response US EPR DC.pdf" provides a response date for the question since a technically correct and complete response cannot be provided at this time.

The following table indicates the respective page in the response document, "RAI 312 Response US EPR DC.pdf," that contains AREVA NP's response to the subject question.

Question #	Start Page	End Page
RAI 312 — 09.04.02-3	2	2

The schedule for a technically correct and complete response to this question is provided below.

Question #	Response Date
RAI 312 — 09.04.02-3	January 28, 2010

Sincerely,

Ronda Pederson

ronda.pederson@areva.com
Licensing Manager, U.S. EPR Design Certification
AREVA NP Inc.
An AREVA and Siemens company
3315 Old Forest Road
Lynchburg, VA 24506-0935
Phone: 434-832-3694
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From: Tesfaye, Getachew [mailto:Getachew.Tesfaye@nrc.gov]
Sent: Wednesday, October 21, 2009 3:24 PM
To: ZZ-DL-A-USEPR-DL

Cc: ODriscoll, James; Jackson, Christopher; Hearn, Peter; Colaccino, Joseph; ArevaEPRDCPEm Resource
Subject: U.S. EPR Design Certification Application RAI No. 312 (3827), FSARCh. 9

Attached please find the subject requests for additional information (RAI). A draft of the RAI was provided to you on October 9, 2009, and on October 15, 2009, you informed us that the RAI is clear and no further clarification is needed. As a result, no change is made to the draft RAI. The schedule we have established for review of your application assumes technically correct and complete responses within 30 days of receipt of RAIs. For any RAIs that cannot be answered within 30 days, it is expected that a date for receipt of this information will be provided to the staff within the 30 day period so that the staff can assess how this information will impact the published schedule.

Thanks,
Getachew Tesfaye
Sr. Project Manager
NRO/DNRL/NARP
(301) 415-3361

Hearing Identifier: AREVA_EPR_DC_RAIs
Email Number: 1230

Mail Envelope Properties (BC417D9255991046A37DD56CF597DB7105896A80)

Subject: Response to U.S. EPR Design Certification Application RAI No. 312, FSAR Ch. 9, Supplement 2
Sent Date: 3/12/2010 4:15:07 PM
Received Date: 3/12/2010 4:15:34 PM
From: BRYAN Martin (EXT)

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Tracking Status: None
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Tracking Status: None

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MESSAGE	4662	3/12/2010 4:15:34 PM
RAI 312 Supplement 2 Response US EPR DC.pdf	551704	

Options
Priority: Standard
Return Notification: No
Reply Requested: No
Sensitivity: Normal
Expiration Date:
Recipients Received:

Response to

Request for Additional Information No. 312, Supplement 2

10/21/2009

U.S. EPR Standard Design Certification
AREVA NP Inc.
Docket No. 52-020
SRP Section: 09.04.02 - Spent Fuel Pool Area Ventilation System
Application Section: 9.4.2

QUESTIONS for Containment and Ventilation Branch 1 (AP1000/EPR Projects)
(SPCV)

Question 09.04.02-3:

As a part of satisfying the provisions of GDC 60 and GDC 61, SRP 9.4.2 states ventilation system components should demonstrate compliance with applicable industry standards, including ASME AG-1, Code on Nuclear Air and Gas Treatment. FSAR Tier 2 Section 9.4.2.6 references ASME AG-1-2003 [Code on Nuclear Air and Gas Treatment," The American Society of Mechanical Engineers, 2003 including the AG-1a, 2004 Addenda]. However, the most recent version of ASME AG-1 endorsed by the NRC staff is ASME AG-1-1997. Therefore, the applicant should either reference ASME AG-1-1997 or should provide justification for use of the 2003 code rather than the 1997 code. Similarly, Some FSAR sections (e.g. 9.4.14) cite newer versions of ASME N509 than the version approved for use by RG 1.140 and 1.52 (ASME N509-1989). Provide justification for use of the newer code rather than the NRC endorsed version of the code.

Response to Question 09.04.02-3:

The effective dates of ASME AG-1 and ASME N509 referenced in the U.S. EPR FSAR, Tier 2 Sections 6.4, 6.5, 9.4, and Appendix 3A do not agree with the NRC-endorsed version of the codes. These codes were referenced in the U.S. EPR FSAR because they were the latest applicable codes at the time of developing the design certification documents.

Referenced codes used in the U.S. EPR FSAR are as follows:

- ASME AG-1-2003, "Code on Nuclear Air and Gas Treatment," (including the ASME AG-1a-2004 Addenda).
- ANSI/ASME N509-2002, "Nuclear Power Plant Air Cleaning Units and Components."

The NRC-endorsed versions of the above codes (as specified in RG 1.140 and RG 1.52) are ASME AG-1-1997 and Section HA, "Housings," of ASME AG-1a-2000 and ASME N509-1989.

A review of the SRP, NUREG-0800 reveals varying effective dates of the referenced codes and standards:

- SRP 3.9.2, "Dynamic Testing & Analysis of Systems, Structures & Components," Revision 3, March 2007 lists ASME AG-1-1997.
- SRP 6.4, "Control Room Habitability Systems," Revision 3, March 2007 lists ASME Code AG-1-1991 including AG-1a-92 Addenda.
- SRP 9.4.1, "Control Room Area Ventilation System," Revision 3, March 2007 lists ASME Code AG-1-1991 including AG-1a-92 Addenda.
- SRP 9.4.2, SRP 9.4.3, SRP 9.4.4, and SRP 9.4.5 (all Revision 3, March 2007) do not list the ASME AG-1 code. However, RG 1.52, RG 1.140, and other referenced documents are listed, but applicable effective dates are not specified.

A reconciliation of the ASME AG-1 and ASME N509 codes and standards used in the U.S. EPR FSAR in relation to the various NRC-endorsed codes are provided as follows:

- "ASME AG-1-2003" reconciliation with "ASME AG-1-1997" **(See Attachment 1**).
- "ASME AG-1a-2004 addenda" reconciliation with "ASME AG-1-1997" **(See Attachment 2).**

- "ANSI/ASME N509-2002" reconciliation with "ASME N509-1989" **(See Attachment 3).**

To acknowledge that a more recent code and standard is used, U.S. EPR FSAR Tier 2, Table 1.9-2 will be revised to indicate that the U.S. EPR design conforms with RG 1.52 and RG 1.140 with an exception that a newer version of ASME AG-1 and ASME N509 is being used instead of the versions referenced in these codes and standards.

FSAR Impact:

U.S. EPR FSAR Tier 2, Table 1.9-2 will be revised as described in the response and indicated on the enclosed markup.

Attachment 1
ASME AG-1-2003 Reconciliation with ASME AG-1-1997

Since ASME AG-1-2003 is the revision to ASME AG-1-1997 (as shown on the title page of ASME AG-1-2003), the reconciliation is done for those se
listed in the "Summary of Changes in ASME AG-1-2003", against the ASME AG-1-1997.

Note: The ASME AG-1a-2000 Addenda which addresses Section HA (Housings) has already been incorported in the ASME AG-1-2003.

ASME AG-1-2003, Summary of Changes (from ASME AG-1-1997)				Applicable Section in ASME AG-1-1997	Evaluat
Page	Location	Change	Contents	Page	
192- 231	Section HA	None	Housings	N/A	Section HA (Housings) ad 1a-2003 Addenda has bee in the ASME AG-1-2003.
235	Article RA-2000	Revised in its entirety	Article RA-2000 lists the referenced documents for the Section RA, Refrigeration Equipment.	232	The listing of referenced d 2003 code is revised to inc applicable dates. The refe list in both codes remains
242	RA-5100	Revised	RA-5100 addresses the performance rating requirements of Referigeration Equipment	239	No change between the 20
265	Article RA-I-1000	(1) First paragraph revised (2) Footnote 1 deleted	Performance testing of chilled water refrigeration unit (customary)	265	Only change is the revisio 550 to ARI 550/590 in the 2003 code. The deleted f reciprocating water chilling no impact on the 2003 coc
269	Article RA-MI-1000	(1) First paragraph revised (2) Footnote 1 deleted	Performance testing of chilled water refrigeration unit (SI)	271	Same as above
282	Article CA-2000	Revised in its entirety	Article CA-2000 lists the referenced documents for Section CA, Conditioning Equipment.	295	The listing of referenced d 2003 code is revised to inc applicable dates. The refe list in both codes remains

ASME AG-1-2003, Summary of Changes (from ASME AG-1-1997)				Applicable Section in ASME AG-1-1997	Eva
Page	Location	Change	Contents	Page	
285	Table CA-3230	Revised	Allowable materials - nonpressure retaining components for water, steam, and volatile refrigerant coils	298	The 2003 code includ material ASTM A 90/A ASTM A 525/A 526 w remaining list of mate codes.
286	Table CA-3310	Revised	Allowable materials - air washers and evaporative coolers	299	Same as above
287	Table CA-3410	Revised	Allowable materials - electric heating coils	300	Same as above
289	CA-4126	Revised in its entirety	Conditioning equipment water and steam coils casing and tube support design requirements and approved material	302	Both codes list the sa material for the casing listed in the 2003 cod
292	CA-4227	Revised in its entirety	Conditioning equipment volatile refrigerant coils casing and tube support design requirements and approved material	305	Both codes list the sa material for casings a in 2003 code.
293, 294	CA-4323	Subparagraph c revised	Conditioning equipment air washers and evaporative coolers eliminators material requirements	306	Both codes list the sa 2003 code replaces m A 653/653M.

ASME AG-1-2003, Summary of Changes (from ASME AG-1-1997)				Applicable Section in ASME AG-1-1997	Ev
Page	Location	Change	Contents	Page	
	CA-4325	Subparagraphs b & e revised	Conditioning equipment air washers and evaporative coolers baffles material requirements	306	Both codes list the sa 2003 code replaces r A 653/653M.
	CA-4327	Subparagraph b revised	Conditioning equipment air washers and evaporative coolers tanks material requirements	307	Both codes list the sa 2003 code replaces r A 653/653M.
303	Article CA-7000	Revised in its entirety	Conditioning equipment packaging, shipping, storage, and handling	316	No major differences between the 1997 an AG-1 code.
338-350	Subsection FB	Added	Medium efficiency filters	367-381	Section FB has been AG-1a-2004 Addenda this section is provide

Attachment 2

ASME AG-1a-2004 ADDENDA Reconciliation with ASME AG-1-1997

Since ASME AG-1a-2004 Addenda is issued as an addenda to ASME AG-1-2003, the reconciliation is done for those sections only that are liste
Changes in ASME AG-1a-2004 Addenda", against the ASME AG-1-1997.

ASME AG-1a-2004 Addenda, Summary of Changes				Applicable Section in ASME AG-1-1997	Eval
Page	Location	Change	Contents	Page	
71, 72	AA-D-2210	Equations (2a), (3), (4), and (5) corrected by errata	Design of ductwork by analysis, circular ductwork, axially loaded compression members	83	U.S. EPR HVAC system corrected equations per A Addenda.
78, 79	AA-D-3340	Equations (36) and (37) corrected by errata	Design of ductwork by analysis, rectangular ductwork, shear stresses in webs	92	U.S. EPR HVAC system corrected equations per A Addenda.
		New Equation. (38) added	Design of ductwork by analysis, rectangular ductwork, shear stresses in webs	92	U.S. EPR HVAC system equation per ASME AG-1
	AA-D-3350	Equation (38) redesignated as Eq. (39)	Design of ductwork by analysis, rectangular ductwork, combined axial and bending stresses	92	U.S. EPR HVAC system redesignated equation p Addenda. .
		Equation (39) corrected by errata and redesignated as Eq. (40)	Design of ductwork by analysis, rectangular ductwork, combined axial and bending stresses	92	U.S. EPR HVAC system corrected and redesignat AG-1a-2004 Addenda.
		Equations (40a) and (40b) redesignated as Eqs. (41a) and (41b), respectively	Design of ductwork by analysis, rectangular ductwork, combined axial and bending stresses	93	U.S. EPR HVAC system redesignated equation p Addenda.
	AA-D-3370	Equations (41a) and (41b) redesignated as Eqs. (42a) and (42b), respectively	Design of ductwork by analysis, rectangular ductwork, combined bending and shear stresses in webs	93	U.S. EPR HVAC system redesignated equation p Addenda.

ASME AG-1a-2004 Addenda, Summary of Changes				Applicable Section in ASME AG-1-1997	Eva
Page	Location	Change	Contents	Page	
	AA-D-3400	Equations (42a), (42b), and (42c) redesignated as Eqs. (43a), (43b), and (43c), respectively	Design of ductwork by analysis, rectangular ductwork, allowable design stresses - Service Levels B, C, or D	93	U.S. EPR HVAC system redesignated equations Addenda. .
		Equation (42d) corrected by errata and redesignated as Eq. (43d)	Design of ductwork by analysis, rectangular ductwork, allowable design stresses - Service Levels B, C, or D	93	U.S. EPR HVAC system corrected equation per A Addenda.
246	RA-6210	Revised	RA-6210 addresses the refrigeration equipment fabrication and installation cleanliness requirements.	243	ASME AG-1a-2004 Adde reference to NQA-1 inste ASME AG-1-1997. The superseded by NQA-1.
247	RA-7100 (a)	Revised	RA-7100 (a) addresses the general requirements of packaging, shipping, storage,and handling for Refrigeration Equipment.	244	ASME AG-1a-2004 Adde reference to NQA-1 inste ASME AG-1-1997. The superseded by NQA-1.
	RA-7200	Revised	RA-7200 addresses the refrigeration equipment packaging requirements.	244	ASME AG-1a-2004 Adde reference to NQA-1 inste ASME AG-1-1997. The superseded by NQA-1.
	RA-7300	Revised	RA-7300 addresses the refrigeration equipment shipping requirements.	244	ASME AG-1a-2004 Adde reference to NQA-1 inste ASME AG-1-1997. The superseded by NQA-1.

ASME AG-1a-2004 Addenda, Summary of Changes				Applicable Section in ASME AG-1-1997	Evaluat
Page	Location	Change	Contents	Page	
	RA-7400	Revised	RA-7400 addresses the refrigeration equipment storage requirements.	244	ASME AG-1a-2004 Addenda reference to NQA-1 instead ASME AG-1-1997. The NQ superseded by NQA-1.
	RA-7500	Second paragraph revised	RA-7500 addresses the refrigeration equipment handling and rigging requirements.	244	ASME AG-1a-2004 Addenda reference to NQA-1 instead ASME AG-1-1997. The NQ superseded by NQA-1.
265, 266	RA-I-1000	Second paragraph added	Performance testing of chilled water refrigeration unit (customary) general requirements.	265	Both codes list the same sta second paragraph has been 1a-2004 Addenda which sta provides mandatory requirer be installed in the United Sta country…."
338 - 350	Section FB	Revised in its entirety by errata	Medium Efficiency Filters	367-381	
			Article FB-1000, Introduction	369	No changes between the AS Addenda, and ASME AG-1-
			Article FB-2000, Referenced Documents	370	The listing of referenced doc AG-1a-2004 Addenda is rev updated applicable dates. T documents list in both codes
			Article FB-3000, Materials	371	No changes between the AS Addenda, and ASME AG-1-
			Article FB-4000, Design	372	No changes between the AS Addenda, and ASME AG-1-

ASME AG-1a-2004 Addenda, Summary of Changes				Applicable Section in ASME AG-1-1997	Eva
Page	Location	Change	Contents	Page	
			Article FB-5000, Inspection and Testing	373	No changes between the Addenda, and ASME AG
			Article FB-6000, Fabrication	374	No changes between the Addenda, and ASME AG
			Article FB-7000, Packaging, Shipping, Receiving, Storage, and Handling	375	Only change is the refer NQA-2. The NQA-2 has 1
			Article FB-8000, Quality Assurance	376	No changes between the Addenda, and ASME AG
			Article FB-9000, Labels and Marking	377	No changes between the Addenda, and ASME AG
			Nonmandatory Appendix FB-A, Division of Responsibility	381	No changes between the Addenda, and ASME AG

Attachment 3

ANSI / ASME N509-2002 Reconciliation with ASME N509-1989

Section	Title	Summary of Contents in ANSI/ASME N509-2002	Summary of Contents in ASME N509-1989	Eva
1	Scope	The standard covers requirements for the design, construction, qualification and acceptance testing of the Enginered Safety Feature (ESF) air-cleaning units and components	Same as in N509-2002	Both standards list the
1.1	Limitations	Field acceptance testing of nuclear air-treatment systems is covered in ASME AG-1, Section TA (the primary reference was ASME N510-1989)	Field acceptance testing and surveillance testing of nuclear air-treatment systems is covered in ASME N510-1989)	Both standards list the except the N509-2002 air treatment systems b Section TA.
!.2	Purpose	Same statement as in N509-1989	Same statement as in N509-2002	Both standards list the
2	Applicable Documents	The reference list includes only ASME AG-1	The reference list includes AEC, ASHRAE, UL, AMCA, ASME, AWS, IEEE, ANSI, ASTM, IPA, MIL, NFPA, SMACNA, NRC codes and standards	N509-2002 covers the referring to ASME AG-
3	Terms and Definitions	For Terms and Definitions, the standard includes a reference to Article AA-1000 and various specific ASME AG-1 Code sections	Includes detailed definitions of all acronyms	N509-2002 covers the referring to ASME AG-
4.1	Functional Design General	Includes general functional and operatng conditions of internal components for the air cleaning units	Same list as in N509-2002	Both standards list the
4.2	Design Parameters	Includes the required design parameters list for air cleaning units	The design parameters list is same as in N509-2002	Both standards list the
4.3	Size (Installed Capacity) of Air Cleaning Units	Includes the size requirements of air cleaning units.	The size requirements of air cleaning units are same as in N509-2002	Both standards list the

Section	Title	Summary of Contents in ANSI/ASME N509-2002	Summary of Contents in ASME N509-1989	Evalua
4.4	Environmental Design Condition	Inlcudes reference to 10CFR 50.49, IEEE 323, and ASME AG-1, Section Article AA and various specific sections	Includes reference to 10CFR 50.49 and IEEE 323	Both standards list the sar except N509-2002 include reference to ASME AG-1
4.5	Structural Load Requirements	Includes reference to ASME AG-1, Article AA-4000, and various specific ASME AG-1 Code sections.	Includes reference to para. 5.10.3, which describes the ducts structural design requirements.	The structural design requ are covered by referring to AA-4000 and other Sectio
4.6	Air-Cleaning Units and Components That Must Withstand Fan Peak Pressure	includes only the design requirements for the air cleanig units and components located on the discharge and inlet side of the fans.	Title of this Section is "Design Pressures". Includes detailed information for operating, leak test, maxmum design, and structural capability pressures. The subsection 4.6.5.4 matches with the N509-2002.	N509-2002 includes updat requirements for the air cl components, which are co
4.7	Nuclear Air-Treatment System Configuration and Location	The Nuclear Air-Treatment System Configuration and Location requirements are same as in N509-1989	The Nuclear Air-Treatment System Configuration and Location requirements are same as in N509-2002	Both standards list the sar
4.8	Maintainability Criteria	Maintainability Criteria requirements are same as in the N509-1989	Maintainability Criteria requirements are same as in the N509-2002	Both standards list the sar
4.9	Monitoring of Operational Variables	Lists reference to ASME AG-1, Section IA for the Instruments and Controls.	Includes subsections with detailed requirements for the Instrumentation, Alarms, and handswitches	N509-2002 provides the u for instruments and contro AG-1, Section IA.
4.10	Adsorbent Cooling	Adsorbent Cooling requirements are same as in the N509-1989	Adsorbent Cooling requirements are same as in the N509-2002	Both standards list the sar
4.11	Fire Protecton	Fire Protection requiements are same as in the N509-1989, except a reference to ASME AG-1, Section FF and Section TA are included.	Fire Protection requiements are same as in the N509-2002, except deatiled requirements are included.	N509-2002 provides addit requirements by referring Sections FF & TA.

Section	Title	Summary of Contents in ANSI/ASME N509-2002	Summary of Contents in ASME N509-1989	Eva
4.12	Insulation	Insulation requirements are same as in the N509-1989	Insulation requirements are same as in the N509-2002	Both standards list the
4.13	Testability	Testability requiements are same as in the N509-1989, except a reference to ASME AG-1, Section TA is included.	Testability requiements are same as in the N509-2002, except reference to ASME N510 and deatiled requirements per para. 5.6.5 (Testing) are included.	N509-2002 provides ac requirements by referri TA.
4.14	Pressure Boundary Leakage	Pressure boundary leakage requiements are the same as in the N509-1989, except a reference to ASME AG-1, Appendix SA-B is included for the leakage criteria and leak test parameters.	Pressure boundary leakage requireemnts are the same as in the N509-2002, except reference to ASME N510 and deatiled requirements per Appendix B are included.	N509-2002 provides ac referring to ASME AG-
5.1	HEPA Filters	Requirements are listed by reference to ASME AG-1, Section FC.	Listed reference to MIL standards; and detailed requirements are included.	N509-2002 provides th for HEPA filters by refe Section FC.
5.2	Tray-Type Bed and Deep Bed Adsorber Cells	Requirements are listed by reference to ASME AG-1, Sections FD, FE, and FF	Listed reference to ASME/ANSI AG-1-1988; and detailed requirements are included.	N509-2002 provides th for adsorber cells by re Section FD, FE, and FI
5.3	Prefilters and Postfilters	Requirements are listed by reference to ASME AG-1, Sections FB.	Listed reference to ARI 680, ASHRAE 52; and detailed requirements are included.	N509-2002 provides th for prefilters and postfil AG-1, Section FB.
5.4	Moisture Separators	Requirements are listed by reference to ASME AG-1, Sections FA.	Listed reference to MSAR, NYO; and detailed requirements are included.	N509-2002 provides th for moisture separators 1, Section FA.

Section	Title	Summary of Contents in ANSI/ASME N509-2002	Summary of Contents in ASME N509-1989	Ev
5.5	Air Heaters	Requirements are listed by reference to ASME AG-1, Sections CA.	Listed reference to ASME N510, IEEE; and detailed requirements are included.	N509-2002 provides th for air heaters by refer Section CA.
5.6	Filter Housing	Requirements are listed by reference to ASME AG-1, Sections HA.	Detailed requirements are included.	N509-2002 provides th for filter housing by ref Section HA.
5.7	Fans	Requirements are listed by reference to ASME AG-1, Sections BA.	Detailed requirements are included.	N509-2002 provides th for fans by referring to
5.8	Fan Drives	Requirements are listed by reference to ASME AG-1, Sections BA.	Detailed requirements are included.	N509-2002 provides th for fan drives by referri BA.
5.9	Dampers	Requirements are listed by reference to ASME AG-1, Sections DA.	Detailed requirements are included.	N509-2002 provides th for dampers by referrin DA.
5.1	Ducts	Requirements are listed by reference to ASME AG-1, Sections SA.	Detailed requirements are included.	N509-2002 provides th for ducts by referring t
6	Packaging, Shipping, Receiving, Storage, and Handling of Components	Requirements are listed by reference to ASME NQA-1, ASME AG-1 Article AA-7000, and various specific ASME AG-1 Code sections.	Listed reference to ASME AG-1-1988, ASME NQA-2; and detailed requirements are included.	N509-2002 provides th by referring to ASME N
7.1	Drawings	The Drawiings requirements are same as in N509-1989.	The Drawings requirements are same as in N509-2002	Both standards list the
7.2	Erections	Erection requirements are same as in N509-1989; except reference to ASME AG-1, Section FC	Erection requirements are same as in N509-2002; except reference to ERDA 76-21 Appendix C.	N509-2002 provides th for erection by referrin FC.

Section	Title	Summary of Contents in ANSI/ASME N509-2002	Summary of Contents in ASME N509-1989	Eva
7.3	Welding	Requirements are listed by reference to ASME AG-1.	Listed reference to ASME AG-1-1988, AWS, ASME Section IX; detailed requirements are included.	N509-2002 provides th requirements by referri ASME AG-1.
7.4	Installation of HEPA Filters and Adsorbers	The requirements are the same as in N509-1989.	The requirements are same as in N509-2002.	Both standards have lis requirements for installa Adsorbers
8	Quality Assurance	Requirements are listed by reference to ASME NQA-1.	Requirements are listed by reference to ASME NQA-1-1986; and other sections in N509-1989.	N509-2002 provides th Assurance requirement NQA-1.
9	Acceptance Testng	Requirements are listed by reference to ASME AG-1, Section TA; and ASME N510.	Requirements are listed by reference to ASME N510; and other sections in N509-1989.	N509-2002 provides th Acceptance Testing rec ASME AG-1, Section T

U.S. EPR Final Safety Analysis Report Markups

Table 1.9-2—U.S. EPR Conformance with Regulatory Guides
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RG / Rev	Description	U.S. EPR Assessment	FSAR Section(s)
1.40, 03/1973	Qualification Tests of Continuous-Duty Motors Installed Inside the Containment of Water-Cooled Nuclear Power Plants	Y	3.11
1.41, 03/1973	Preoperational Testing of Redundant On-Site Electric Power Systems To Verify Proper Load Group Assignments	Y	14.2
1.43, 05/1973	Control of Stainless Steel Weld Cladding of Low-Alloy Steel Components	Y	5.2.3
1.44, 05/1973	Control of the Use of Sensitized Stainless Steel	Y	3.6.3.3.4 5.2.3 6.1.1
1.45, R1, 5/2008	Reactor Coolant Pressure Boundary Leakage Detection Systems	Y	3.6.3 5.2.5
1.47, 05/1973	Bypassed and Inoperable Status Indication for Nuclear Power Plant Safety Systems	Y	7.1 7.5.2.2.4 Table 8.1-1 8.3.2.2.4
1.50, 05/1973	Control of Preheat Temperature for Welding of Low-Alloy Steel	Y	5.2.3 6.1.1
1.52, R3	Design, Inspection, and Testing Criteria for Air Filtration and Adsorption Units of Post-Accident Engineered-Safety-Feature Atmosphere Cleanup Systems in Light-Water-Cooled Nuclear Power Plants	Y EXCEPTION (ASME AG-1-2003 and ANSI/ ASME N 509-2002 used) 09.04.02-3	6.2.3.2 6.4.2.2 6.5 9.4.1.1 9.4.5.1.1 12.3.3.3~~.2~~ 12.3.6.5.6 ~~14.2.7~~14.2
1.53, R2	Application of the Single-Failure Criterion to Nuclear Power Plant Protection Systems	Y	7.1 8.1.4 8.3.2.2.3 15.2 15.3

Table 1.9-2—U.S. EPR Conformance with Regulatory Guides
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RG / Rev	Description	U.S. EPR Assessment	FSAR Section(s)
1.130, R2	Service Limits and Loading Combinations for Class 1 Plate-and-Shell-Type Component Supports	Y	3.9.3
1.131, 08/1977	Qualification Tests of Electric Cables, Field Splices, and Connections for Light-Water-Cooled Nuclear Power Plants	Y	3.11.2.1
1.132, R2	Site Investigations for Foundations of Nuclear Power Plants	N/A-COL	N/A
1.133, R1	Loose-Part Detection Program for the Primary System of Light-Water-Cooled Reactors	Y	4.4.6.6
			7.1
1.134, R3	Medical Evaluation of Licensed Personnel at Nuclear Power Plants	N/A-COL	N/A
1.135, 09/1977	Normal Water Level and Discharge at Nuclear Power Plants	N/A-COL	N/A
1.136, R3	Design Limits, Loading Combinations, Materials, Construction, and Testing of Concrete Containments	Y	3.8.1.2.5
			3.8.1.3
			3.8.3.2.5
		EXCEPTION (2001 Ed. ASME Code)	3.8.1.2.5
			3.8.1.3
			3.8.3.2.5
1.137, R1	Fuel-Oil Systems for Standby Diesel Generators	Y	9.5.4
1.138, R2	Laboratory Investigations of Soils and Rocks for Engineering Analysis and Design of Nuclear Power Plants	N/A-COL	N/A
1.139, 05/1978	Guidance for Residual Heat Removal	Y	14.2
1.140, R2	Design, Inspection, and Testing Criteria for Air Filtration and Adsorption Units of Normal Atmosphere Cleanup Systems in Light-Water-Cooled Nuclear Power Plants	Y	9.4.1.1
		EXCEPTION (ASME AG-1-2003 and ANSI/ ASME N 509-2002 used)	9.4.2.1
			9.4.3.1
			9.4.5.1
			9.4.7.2.1
			9.4.8
			12.3.3.3
			12.3.6.5.6
			14.2

09.04.02-3