ArevaEPRDCPEm Resource

From: BRYAN Martin (EXTERNAL AREVA) [Martin.Bryan.ext@areva.com]
Sent: Friday, January 28, 2011 11:27 AM
To: Tesfaye, Getachew
Cc: DELANO Karen (AREVA); ROMINE Judy (AREVA); BENNETT Kathy (AREVA); KOWALSKI David (AREVA); BALLARD Bob (AREVA); WILLIFORD Dennis (AREVA); HALLINGER Pat (EXTERNAL AREVA); HAYS Lynn (AREVA); GARDNER Darrell (AREVA); PATTON Jeff (AREVA)
Subject: DRAFT Response to U.S. EPR Design Certification Application RAI No. 345, FSAR Ch. 9, question 9.2.1-39
Attachments: RAI 345 Supplement 11 Response US EPR DC - DRAFT.pdf

Getachew,

Attached is a draft response to RAI 345 question 9.2.1-39 (FSAR Markups). This can be submitted final as soon as the staff approves. We will process a deferral later today to move the date out from today (January 28 is the current due date) but we will submit final once we receive the staff approval.

Thanks,

Martin (Marty) C. Bryan
U.S. EPR Design Certification Licensing Manager
AREVA NP Inc.
Tel: (434) 832-3016
702 561-3528 cell
Martin.Bryan.ext@areva.com

From: BRYAN Martin (External RS/NB)
Sent: Wednesday, January 12, 2011 5:50 PM
To: 'Tesfaye, Getachew'
Cc: DELANO Karen (RS/NB); ROMINE Judy (RS/NB); BENNETT Kathy (RS/NB); KOWALSKI David (RS/NB)
Subject: Response to U.S. EPR Design Certification Application RAI No. 345, FSAR Ch. 9, Supplement 10

Getachew,

AREVA NP Inc. provided a schedule for technically correct and complete responses to the 25 questions in RAI No. 345 on April 2, 2010. Supplement 1 response to RAI No. 345 was sent on June 4, 2010 to provide a revised schedule. Supplement 2 response to RAI No. 345 was sent on June 22, 2010 to address two of the questions. Supplement 3 response to RAI No. 345 was sent on July 8, 2010 to provide a revised schedule. Supplement 4 response to RAI No. 345 was sent on July 20, 2010 to provide technically correct and complete response to four questions and a technically correct and partial response to one question. Supplement 5 response to RAI No. 345 was sent on August 31, 2010 to provide a revised schedule. Supplement 6 response to RAI No. 345 was sent on September 14, 2010 to provide technically correct and complete responses to six questions. Supplement 7 and Supplement 8 responses to RAI No. 345 were sent on September 29, 2010 and October 29, 2010, respectively, to provide a revised schedule. Supplement 9 was provided on November 04, 2010 to provide responses for the remaining thirteen questions. However, in the response itself it was stated that the FSAR markups for RAI 345 question 09.02.01-39 would be provided by January 12, 2011. Additional time is needed to finalize the markups and interact with the NRC so a revised date for the FSAR markups for question 09.02-01-39 is provided below.

Question #	Response Date (FSAR Markups)
RAI 345 — 09.02.01-39	January 28, 2011

Sincerely,

Martin (Marty) C. Bryan
U.S. EPR Design Certification Licensing Manager
AREVA NP Inc.
Tel: (434) 832-3016
702 561-3528 cell
Martin.Bryan.ext@areva.com

From: BRYAN Martin (External RS/NB)
Sent: Thursday, November 04, 2010 8:00 PM
To: 'Tesfaye, Getachew'
Cc: DELANO Karen (RS/NB); ROMINE Judy (RS/NB); BENNETT Kathy (RS/NB); KOWALSKI David (RS/NB)
Subject: Response to U.S. EPR Design Certification Application RAI No. 345, FSAR Ch. 9, Supplement 9

Getachew,

AREVA NP Inc. provided a schedule for technically correct and complete responses to the 25 questions in RAI No. 345 on April 2, 2010. Supplement 1 response to RAI No. 345 was sent on June 4, 2010 to provide a revised schedule. Supplement 2 response to RAI No. 345 was sent on June 22, 2010 to address two of the questions. Supplement 3 response to RAI No. 345 was sent on July 8, 2010 to provide a revised schedule. Supplement 4 response to RAI No. 345 was sent on July 20, 2010 to provide technically correct and complete response to four questions and a technically correct and partial response to one question. Supplement 5 response to RAI No. 345 was sent on August 31, 2010 to provide a revised schedule. Supplement 6 response to RAI No. 345 was sent on September 14, 2010 to provide technically correct and complete responses to six questions. Supplement 7 and Supplement 8 responses to RAI No. 345 were sent on September 29, 2010 and October 29, 2010, respectively, to provide a revised schedule.

The attached file, “RAI 345 Supplement 9 Response US EPR DC.pdf” provides technically correct and complete responses to the remaining thirteen questions.

Appended to this file are affected pages of the U.S. EPR Final Safety Analysis Report in redline-strikeout format which supports the response to RAI 345 Questions 09.02.01-28, 09.02.01-32, 09.02.01-35, 09.02.01-36, 09.02.01-38, 09.02.01-41, 09.02.01-42, 09.02.01-46, 09.02.01-48 and 09.02.01-49.

The following table indicates the respective pages in the response document, “RAI 345 Supplement 9 Response US EPR DC.pdf,” that contain AREVA NP’s response to the subject questions.

Question #	Start Page	End Page
RAI 345 — 09.02.01-28	2	5
RAI 345 — 09.02.01-29	6	6
RAI 345 — 09.02.01-32	7	8
RAI 345 — 09.02.01-34 (a, b and c)	9	10
RAI 345 — 09.02.01-35	11	14
RAI 345 — 09.02.01-36	15	17
RAI 345 — 09.02.01-38	18	19
RAI 345 — 09.02.01-39	20	21

RAI 345 — 09.02.01-41	22	24
RAI 345 — 09.02.01-42	25	26
RAI 345 — 09.02.01-46	27	28
RAI 345 — 09.02.01-48	29	30
RAI 345 — 09.02.01-49	31	33

This concludes the formal AREVA NP response to RAI 345, and there are no questions from this RAI for which AREVA NP has not provided responses.

Sincerely,

Martin (Marty) C. Bryan
U.S. EPR Design Certification Licensing Manager
AREVA NP Inc.
Tel: (434) 832-3016
702 561-3528 cell
Martin.Bryan.ext@areva.com

Getachew,

AREVA NP Inc. provided a schedule for technically correct and complete responses to the 25 questions in RAI No. 345 on April 2, 2010. Supplement 1 response to RAI No. 345 was sent on June 4, 2010 to provide a revised schedule. Supplement 2 response to RAI No. 345 was sent on June 22, 2010 to address two of the questions. Supplement 3 response to RAI No. 345 was sent on July 8, 2010 to provide a revised schedule. Supplement 4 response to RAI No. 345 was sent on July 20, 2010 to provide technically correct and complete response to four questions and a technically correct and partial response to one question. Supplement 5 response to RAI No. 345 was sent on August 31, 2010 to provide a revised schedule. Supplement 6 response to RAI No. 345 was sent on September 14, 2010 to provide technically correct and complete responses to six questions. Supplement 7 response to RAI No. 345 was sent on September 29, 2010 to provide a revised schedule. To provide additional time to process the responses, a revised schedule is provided in this e-mail.

The schedule for technically correct and complete responses to the remaining questions is provided below.

Question #	**Response Date**
RAI 345 — 09.02.01-28	November 4, 2010
RAI 345 — 09.02.01-29	November 4, 2010
RAI 345 — 09.02.01-32	November 4, 2010
RAI 345 — 09.02.01-34 (a, b and c)	November 4, 2010
RAI 345 — 09.02.01-35	November 4, 2010
RAI 345 — 09.02.01-36	November 4, 2010
RAI 345 — 09.02.01-38	November 4, 2010
RAI 345 — 09.02.01-39	November 4, 2010
RAI 345 — 09.02.01-41	November 4, 2010
RAI 345 — 09.02.01-42	November 4, 2010
RAI 345 — 09.02.01-46	November 4, 2010
RAI 345 — 09.02.01-48	November 4, 2010
RAI 345 — 09.02.01-49	November 4, 2010

Sincerely,

Martin (Marty) C. Bryan
U.S. EPR Design Certification Licensing Manager
AREVA NP Inc.
Tel: (434) 832-3016
702 561-3528 cell
Martin.Bryan.ext@areva.com

From: BRYAN Martin (External RS/NB)
Sent: Wednesday, September 29, 2010 5:19 PM
To: 'Tesfaye, Getachew'
Cc: DELANO Karen (RS/NB); ROMINE Judy (RS/NB); BENNETT Kathy (RS/NB); GARDNER Darrell (RS/NB); KOWALSKI David (RS/NB); RYAN Tom (RS/NB)
Subject: Response to U.S. EPR Design Certification Application RAI No. 345, FSAR Ch. 9, Supplement 7

Getachew,

AREVA NP Inc. provided a schedule for technically correct and complete responses to the 25 questions in RAI No. 345 on April 2, 2010. Supplement 1 response to RAI No. 345 was sent on June 4, 2010 to provide a revised schedule. Supplement 2 response to RAI No. 345 was sent on June 22, 2010 to address two of the questions. Supplement 3 response to RAI No. 345 was sent on July 8, 2010 to provide a revised schedule. Supplement 4 response to RAI No. 345 was sent on July 20, 2010 to provide technically correct and complete response to four questions and a technically correct and partial response to one question. Supplement 5 response to RAI No. 345 was sent on August 31, 2010 to provide a revised schedule. Supplement 6 response to RAI No. 345 was sent on September 14, 2010 to provide technically correct and complete response to six questions.

To provide additional time for interaction and feedback from the staff and to process the responses, a revised schedule is provided in this email for the response to the remaining 13 questions.

The schedule for technically correct and complete responses to the remaining questions is provided below.

Question #	Response Date
RAI 345 — 09.02.01-28	October 29, 2010
RAI 345 — 09.02.01-29	October 29, 2010
RAI 345 — 09.02.01-32	October 29, 2010
RAI 345 — 09.02.01-34 (a, b and c)	October 29, 2010
RAI 345 — 09.02.01-35	October 29, 2010
RAI 345 — 09.02.01-36	October 29, 2010
RAI 345 — 09.02.01-38	October 29, 2010
RAI 345 — 09.02.01-39	October 29, 2010
RAI 345 — 09.02.01-41	October 29, 2010
RAI 345 — 09.02.01-42	October 29, 2010
RAI 345 — 09.02.01-46	October 29, 2010
RAI 345 — 09.02.01-48	October 29, 2010
RAI 345 — 09.02.01-49	October 29, 2010

Sincerely,

Martin (Marty) C. Bryan
U.S. EPR Design Certification Licensing Manager
AREVA NP Inc.
Tel: (434) 832-3016
702 561-3528 cell
Martin.Bryan.ext@areva.com

From: BRYAN Martin (External RS/NB)
Sent: Tuesday, September 14, 2010 5:33 PM
To: 'Tesfaye, Getachew'
Cc: DELANO Karen (RS/NB); ROMINE Judy (RS/NB); BENNETT Kathy (RS/NB); KOWALSKI David (RS/NB)
Subject: Response to U.S. EPR Design Certification Application RAI No. 345, FSAR Ch. 9, Supplement 6

Getachew,

AREVA NP Inc. provided a schedule for technically correct and complete responses to the 25 questions in RAI No. 345 on April 2, 2010. Supplement 1 response to RAI No. 345 was sent on June 4, 2010 to provide a revised schedule. Supplement 2 response to RAI No. 345 was sent on June 22, 2010 to address two of the questions. Supplement 3 response to RAI No. 345 was sent on July 8, 2010 to provide a revised schedule. Supplement 4 response to RAI No. 345 was sent on July 20, 2010 to provide technically correct and complete response to four questions and a technically correct and partial response to one question. Supplement 5 response to RAI No. 345 was sent on August 31, 2010 to provide a revised schedule.

The attached file, "RAI 345 Supplement 6 Response US EPR DC.pdf" provides technically correct and complete responses to six questions.

Appended to this file are affected pages of the U.S. EPR Final Safety Analysis Report in redline-strikeout format which supports the responses to RAI 345 Questions 09.02.01-26, 09.02.01-31, 09.02.01-44, 09.02.01-45 and 09.02.01-47.

The following table indicates the respective pages in the response document, "RAI 345 Supplement 6 Response US EPR DC.pdf," that contain AREVA NP's response to the subject questions.

Question #	Start Page	End Page
RAI 345 — 09.02.01-26	2	4
RAI 345 — 09.02.01-31	5	5
RAI 345 — 09.02.01-44	6	7
RAI 345 — 09.02.01-45	8	9
RAI 345 — 09.02.01-47	10	11
RAI 345 — 09.02.01-50	12	12

The schedule for technically correct and complete responses to the remaining questions remains the same and is provided below.

Question #	Response Date
RAI 345 — 09.02.01-28	September 29, 2010
RAI 345 — 09.02.01-29	September 29, 2010
RAI 345 — 09.02.01-32	September 29, 2010
RAI 345 — 09.02.01-34 (a, b and c)	September 29, 2010
RAI 345 — 09.02.01-35	September 29, 2010
RAI 345 — 09.02.01-36	September 29, 2010
RAI 345 — 09.02.01-38	September 29, 2010

RAI 345 — 09.02.01-39	September 29, 2010
RAI 345 — 09.02.01-41	September 29, 2010
RAI 345 — 09.02.01-42	September 29, 2010
RAI 345 — 09.02.01-46	September 29, 2010
RAI 345 — 09.02.01-48	September 29, 2010
RAI 345 — 09.02.01-49	September 29, 2010

Sincerely,

Martin (Marty) C. Bryan
U.S. EPR Design Certification Licensing Manager
AREVA NP Inc.
Tel: (434) 832-3016
702 561-3528 cell
Martin.Bryan.ext@areva.com

From: BRYAN Martin (External RS/NB)
Sent: Tuesday, August 31, 2010 2:44 PM
To: 'Tesfaye, Getachew'
Cc: DELANO Karen (RS/NB); ROMINE Judy (RS/NB); BENNETT Kathy (RS/NB); KOWALSKI David (RS/NB)
Subject: Response to U.S. EPR Design Certification Application RAI No. 345, FSAR Ch. 9, Supplement 5

Getachew,

AREVA NP Inc. provided a schedule for technically correct and complete responses to the 25 questions in RAI No. 345 on April 2, 2010. Supplement 1 response to RAI No. 345 was sent on June 4, 2010 to provide a revised schedule. Supplement 2 response to RAI No. 345 was sent on June 22, 2010 to address two of the questions. Supplement 3 response to RAI No. 345 was sent on July 8, 2010 to provide a revised schedule. Supplement 4 response to RAI No. 345 was sent on July 20, 2010 to provide technically correct and complete response to four questions and a technically correct and partial response to one question. Since responses to the remaining questions are being processed, a revised schedule is provided in this email.

The schedule for technically correct and complete responses to the remaining questions has been revised and is provided below.

Question #	**Response Date**
RAI 345 — 09.02.01-26	September 14, 2010
RAI 345 — 09.02.01-28	September 29, 2010
RAI 345 — 09.02.01-29	September 29, 2010
RAI 345 — 09.02.01-31	September 14, 2010
RAI 345 — 09.02.01-32	September 29, 2010
RAI 345 — 09.02.01-34 (a, b and c)	September 29, 2010
RAI 345 — 09.02.01-35	September 29, 2010
RAI 345 — 09.02.01-36	September 29, 2010
RAI 345 — 09.02.01-38	September 29, 2010
RAI 345 — 09.02.01-39	September 29, 2010
RAI 345 — 09.02.01-41	September 29, 2010
RAI 345 — 09.02.01-42	September 29, 2010
RAI 345 — 09.02.01-44	September 14, 2010
RAI 345 — 09.02.01-45	September 14, 2010
RAI 345 — 09.02.01-46	September 29, 2010

RAI 345 — 09.02.01-47	September 14, 2010
RAI 345 — 09.02.01-48	September 14, 2010
RAI 345 — 09.02.01-49	September 29, 2010
RAI 345 — 09.02.01-50	September 14, 2010

Sincerely,

Martin (Marty) C. Bryan
U.S. EPR Design Certification Licensing Manager
AREVA NP Inc.
Tel: (434) 832-3016
702 561-3528 cell
Martin.Bryan.ext@areva.com

From: BRYAN Martin (EXT)
Sent: Tuesday, July 20, 2010 5:24 PM
To: 'Tesfaye, Getachew'
Cc: DELANO Karen V (AREVA NP INC); ROMINE Judy (AREVA NP INC); BENNETT Kathy A (OFR) (AREVA NP INC); KOWALSKI David J (AREVA NP INC)
Subject: Response to U.S. EPR Design Certification Application RAI No. 345, FSAR Ch. 9, Supplement 4

Getachew,

AREVA NP Inc. provided a schedule for technically correct and complete responses to the 25 questions in RAI No. 345 on April 2, 2010. Supplement 1 response to RAI No. 345 was sent on June 4, 2010 to provide a revised schedule. Supplement 2 response to RAI No. 345 was sent on June 22, 2010 to address two of the questions. Supplement 3 response to RAI No. 345 was sent on July 8, 2010 to provide a revised schedule.

The attached file, "RAI 345 Supplement 4 Response US EPR DC.pdf" provides a technically correct and complete response to four questions and a technically correct and partial response to one question.

Appended to this file are affected pages of the U.S. EPR Final Safety Analysis Report in redline-strikeout format which supports the responses to RAI 345 Questions 09.02.01-27, 09.02.01-30, 09.02.01-33, 09.02.01-34 and 09.02.01-43.

The following table indicates the respective pages in the response document, "RAI 345 Supplement 4 Response US EPR DC.pdf," that contain AREVA NP's response to the subject questions.

Question #	Start Page	End Page
RAI 345 — 09.02.01-27	2	3
RAI 345 — 09.02.01-30	4	5
RAI 345 — 09.02.01-33	6	6
RAI 345 — 09.02.01-34 (d and e)	7	9
RAI 345 — 09.02.01-43	10	11

To allow time for interaction between AREVA and the NRC staff, a revised schedule is provided in this e-mail.

The schedule for technically correct and complete responses to the remaining questions has been revised and is provided below.

Question #	Response Date
RAI 345 — 09.02.01-26	August 31, 2010

RAI 345 — 09.02.01-28	August 31, 2010
RAI 345 — 09.02.01-29	August 31, 2010
RAI 345 — 09.02.01-31	August 31, 2010
RAI 345 — 09.02.01-32	August 31, 2010
RAI 345 — 09.02.01-34 (a, b and c)	August 31, 2010
RAI 345 — 09.02.01-35	August 31, 2010
RAI 345 — 09.02.01-36	August 31, 2010
RAI 345 — 09.02.01-38	August 31, 2010
RAI 345 — 09.02.01-39	August 31, 2010
RAI 345 — 09.02.01-41	August 31, 2010
RAI 345 — 09.02.01-42	August 31, 2010
RAI 345 — 09.02.01-44	August 31, 2010
RAI 345 — 09.02.01-45	August 31, 2010
RAI 345 — 09.02.01-46	August 31, 2010
RAI 345 — 09.02.01-47	August 31, 2010
RAI 345 — 09.02.01-48	August 31, 2010
RAI 345 — 09.02.01-49	August 31, 2010
RAI 345 — 09.02.01-50	August 31, 2010

Sincerely,

Martin (Marty) C. Bryan
U.S. EPR Design Certification Licensing Manager
AREVA NP Inc.
Tel: (434) 832-3016
702 561-3528 cell
Martin.Bryan.ext@areva.com

From: BRYAN Martin (EXT)
Sent: Thursday, July 08, 2010 3:55 PM
To: 'Tesfaye, Getachew'
Cc: DELANO Karen V (AREVA NP INC); ROMINE Judy (AREVA NP INC); BENNETT Kathy A (OFR) (AREVA NP INC); KOWALSKI David J (AREVA NP INC)
Subject: Response to U.S. EPR Design Certification Application RAI No. 345, FSAR Ch. 9, Supplement 3

Getachew,

AREVA NP Inc. provided a schedule for technically correct and complete responses to the 25 questions in RAI No. 345 on April 2, 2010. Supplement 1 response to RAI No. 345 was sent on June 4, 2010 to provide a revised schedule. Supplement 2 response to RAI No. 345 was sent on June 22, 2010 to address two of the questions.

To allow time for interaction between AREVA and the NRC staff, a revised schedule is provided in this e-mail.

The schedule for technically correct and complete responses to the remaining 23 questions has been revised and is provided below.

Question #	**Response Date**
RAI 345 — 09.02.01-26	August 31, 2010
RAI 345 — 09.02.01-27	July 16, 2010
RAI 345 — 09.02.01-28	August 31, 2010
RAI 345 — 09.02.01-29	August 31, 2010

RAI 345 — 09.02.01-30	July 16, 2010
RAI 345 — 09.02.01-31	August 31, 2010
RAI 345 — 09.02.01-32	August 31, 2010
RAI 345 — 09.02.01-33	July 16, 2010
RAI 345 — 09.02.01-34	July 16, 2010
RAI 345 — 09.02.01-35	August 31, 2010
RAI 345 — 09.02.01-36	August 31, 2010
RAI 345 — 09.02.01-38	August 31, 2010
RAI 345 — 09.02.01-39	August 31, 2010
RAI 345 — 09.02.01-41	August 31, 2010
RAI 345 — 09.02.01-42	August 31, 2010
RAI 345 — 09.02.01-43	July 16, 2010
RAI 345 — 09.02.01-44	August 31, 2010
RAI 345 — 09.02.01-45	August 31, 2010
RAI 345 — 09.02.01-46	August 31, 2010
RAI 345 — 09.02.01-47	August 31, 2010
RAI 345 — 09.02.01-48	August 31, 2010
RAI 345 — 09.02.01-49	August 31, 2010
RAI 345 — 09.02.01-50	August 31, 2010

Sincerely,

Martin (Marty) C. Bryan
U.S. EPR Design Certification Licensing Manager
AREVA NP Inc.
Tel: (434) 832-3016
702 561-3528 cell
Martin.Bryan.ext@areva.com

From: BRYAN Martin (EXT)
Sent: Tuesday, June 22, 2010 1:23 PM
To: 'Tesfaye, Getachew'
Cc: DELANO Karen V (AREVA NP INC); ROMINE Judy (AREVA NP INC); BENNETT Kathy A (OFR) (AREVA NP INC); KOWALSKI David J (AREVA NP INC)
Subject: Response to U.S. EPR Design Certification Application RAI No. 345, FSAR Ch. 9, Supplement 2

Getachew,

AREVA NP Inc. provided a schedule for technically correct and complete responses to the 25 questions in RAI No. 345 on April 2, 2010. Supplement 1 response to RAI No. 345 was sent on June 4, 2010 to provide a revised schedule.

The attached file, “RAI 345 Supplement 2 Response US EPR DC.pdf” provides technically correct and complete responses to two of the questions, as committed.

The following table indicates the respective pages in the response document, “RAI 345 Supplement 2 Response US EPR DC.pdf,” that contain AREVA NP’s response to the subject questions.

Question #	Start Page	End Page
RAI 345 — 09.02.01-37	2	3
RAI 345 — 09.02.01-40	4	4

The schedule for technically correct and complete responses to the remaining questions is unchanged and provided below.

Question #	Response Date
RAI 345 — 09.02.01-26	July 22, 2010
RAI 345 — 09.02.01-27	July 22, 2010
RAI 345 — 09.02.01-28	July 22, 2010
RAI 345 — 09.02.01-29	July 8, 2010
RAI 345 — 09.02.01-30	July 8, 2010
RAI 345 — 09.02.01-31	July 22, 2010
RAI 345 — 09.02.01-32	July 22, 2010
RAI 345 — 09.02.01-33	July 22, 2010
RAI 345 — 09.02.01-34	July 8, 2010
RAI 345 — 09.02.01-35	July 22, 2010
RAI 345 — 09.02.01-36	July 22, 2010
RAI 345 — 09.02.01-38	July 22, 2010
RAI 345 — 09.02.01-39	July 22, 2010
RAI 345 — 09.02.01-41	July 22, 2010
RAI 345 — 09.02.01-42	July 8, 2010
RAI 345 — 09.02.01-43	July 8, 2010
RAI 345 — 09.02.01-44	July 8, 2010
RAI 345 — 09.02.01-45	July 8, 2010
RAI 345 — 09.02.01-46	July 8, 2010
RAI 345 — 09.02.01-47	July 22, 2010
RAI 345 — 09.02.01-48	July 22, 2010
RAI 345 — 09.02.01-49	July 22, 2010
RAI 345 — 09.02.01-50	July 8, 2010

Sincerely,

Martin (Marty) C. Bryan
U.S. EPR Design Certification Licensing Manager
AREVA NP Inc.
Tel: (434) 832-3016
702 561-3528 cell
Martin.Bryan.ext@areva.com

From: BRYAN Martin (EXT)
Sent: Friday, June 04, 2010 2:04 PM
To: 'Tesfaye, Getachew'
Cc: DELANO Karen V (AREVA NP INC); ROMINE Judy (AREVA NP INC); BENNETT Kathy A (OFR) (AREVA NP INC); KOWALSKI David J (AREVA NP INC)
Subject: Response to U.S. EPR Design Certification Application RAI No. 345, FSAR Ch. 9, Supplement 1

Getachew,

AREVA NP Inc. provided a schedule for technically correct and complete responses to the 25 questions in RAI No. 345 on April 2, 2010.

The responses to the questions in RAI 345 are in various stages of preparation or review with the NRC. The revised response dates below are relative to the where the question is in this process.

The schedule for technically correct and complete responses to the questions has been changed as provided below:

Question #	Response Date
RAI 345 — 09.02.01-26	July 22, 2010
RAI 345 — 09.02.01-27	July 22, 2010
RAI 345 — 09.02.01-28	July 22, 2010
RAI 345 — 09.02.01-29	July 8, 2010
RAI 345 — 09.02.01-30	July 8, 2010
RAI 345 — 09.02.01-31	July 22, 2010
RAI 345 — 09.02.01-32	July 22, 2010
RAI 345 — 09.02.01-33	July 22, 2010
RAI 345 — 09.02.01-34	July 8, 2010
RAI 345 — 09.02.01-35	July 22, 2010
RAI 345 — 09.02.01-36	July 22, 2010
RAI 345 — 09.02.01-37	June 22, 2010
RAI 345 — 09.02.01-38	July 22, 2010
RAI 345 — 09.02.01-39	July 22, 2010
RAI 345 — 09.02.01-40	June 22, 2010
RAI 345 — 09.02.01-41	July 22, 2010
RAI 345 — 09.02.01-42	July 8, 2010
RAI 345 — 09.02.01-43	July 8, 2010
RAI 345 — 09.02.01-44	July 8, 2010
RAI 345 — 09.02.01-45	July 8, 2010
RAI 345 — 09.02.01-46	July 8, 2010
RAI 345 — 09.02.01-47	July 22, 2010
RAI 345 — 09.02.01-48	July 22, 2010
RAI 345 — 09.02.01-49	July 22, 2010
RAI 345 — 09.02.01-50	July 8, 2010

Sincerely,

Martin (Marty) C. Bryan
U.S. EPR Design Certification Licensing Manager
AREVA NP Inc.
Tel: (434) 832-3016
702 561-3528 cell
Martin.Bryan.ext@areva.com

From: BRYAN Martin (EXT)
Sent: Friday, April 02, 2010 5:34 PM
To: 'Tesfaye, Getachew'
Cc: DELANO Karen V (AREVA NP INC); ROMINE Judy (AREVA NP INC); BENNETT Kathy A (OFR) (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. 345 (4021), FSAR Ch. 9

Getachew,

Attached please find AREVA NP Inc.'s response to the subject request for additional information (RAI). The attached file, "RAI 345 Response US EPR DC," provides a schedule since technically correct and complete responses to the twenty five questions are not provided.

The following table indicates the respective pages in the response document, "RAI 345 Response US EPR DC.pdf," that contain AREVA NP's response to the subject questions.

Question #	Start Page	End Page
RAI 345 — 09.02.01-26	2	3
RAI 345 — 09.02.01-27	4	4
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RAI 345 — 09.02.01-31	9	9
RAI 345 — 09.02.01-32	10	10
RAI 345 — 09.02.01-33	11	11
RAI 345 — 09.02.01-34	12	13
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RAI 345 — 09.02.01-37	18	18
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RAI 345 — 09.02.01-43	24	24
RAI 345 — 09.02.01-44	25	25
RAI 345 — 09.02.01-45	26	26
RAI 345 — 09.02.01-46	27	27
RAI 345 — 09.02.01-47	28	28
RAI 345 — 09.02.01-48	29	29
RAI 345 — 09.02.01-49	30	31
RAI 345 — 09.02.01-50	32	32

The schedule for a technically correct and complete response to these questions is provided below.

Question #	Response Date
RAI 345 — 09.02.01-26	June 4, 2010
RAI 345 — 09.02.01-27	June 4, 2010
RAI 345 — 09.02.01-28	June 4, 2010
RAI 345 — 09.02.01-29	June 4, 2010
RAI 345 — 09.02.01-30	June 4, 2010
RAI 345 — 09.02.01-31	June 4, 2010
RAI 345 — 09.02.01-32	June 4, 2010
RAI 345 — 09.02.01-33	June 4, 2010
RAI 345 — 09.02.01-34	June 4, 2010
RAI 345 — 09.02.01-35	June 4, 2010
RAI 345 — 09.02.01-36	June 4, 2010
RAI 345 — 09.02.01-37	June 4, 2010
RAI 345 — 09.02.01-38	June 4, 2010
RAI 345 — 09.02.01-39	June 4, 2010
RAI 345 — 09.02.01-40	June 4, 2010

RAI 345 — 09.02.01-41	June 4, 2010
RAI 345 — 09.02.01-42	June 4, 2010
RAI 345 — 09.02.01-43	June 4, 2010
RAI 345 — 09.02.01-44	June 4, 2010
RAI 345 — 09.02.01-45	June 4, 2010
RAI 345 — 09.02.01-46	June 4, 2010
RAI 345 — 09.02.01-47	June 4, 2010
RAI 345 — 09.02.01-48	June 4, 2010
RAI 345 — 09.02.01-49	June 4, 2010
RAI 345 — 09.02.01-50	June 4, 2010

Sincerely,

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Licensing Advisory Engineer
AREVA NP Inc.
Tel: (434) 832-3016
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From: Tesfaye, Getachew [mailto:Getachew.Tesfaye@nrc.gov]
Sent: Thursday, March 04, 2010 2:49 PM
To: ZZ-DL-A-USEPR-DL
Cc: Wheeler, Larry; Lee, Samuel; Segala, John; Hearn, Peter; Colaccino, Joseph; ArevaEPRDCPEm Resource
Subject: U.S. EPR Design Certification Application RAI No. 345 (4021), FSAR Ch. 9

Attached please find the subject requests for additional information (RAI). A draft of the RAI was provided to you on December 10, 2009, and discussed with your staff on March 4, 2010. Drat RAI Questions 09.02.01-31, 09.02.01-47, and 09.02.01-48 were modified as a result of that discussion. 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: 2495

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Subject: DRAFT Response to U.S. EPR Design Certification Application RAI No. 345, FSAR Ch. 9, question 9.2.1-39
Sent Date: 1/28/2011 11:27:00 AM
Received Date: 1/28/2011 11:27:38 AM
From: BRYAN Martin (EXTERNAL AREVA)

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U.S. EPR Final Safety Analysis Report Markups

Table 3.9.6-2—Inservice Valve Testing Program Requirements
(Sheet 77 of 103)

Valve Identification Number[1]	Description/ Valve Function	Valve Type[2]	Valve Actuator[3]	ASME Code Class[4]	ASME OM Code Category[5]	Active / Passive[6]	Safety Position[7]	Test Required[8,10]	Test Frequency[9]	Comments
30PEB10AA027	Isolation Upstream KAA10 AC001	BF	MA	3	B	A	O	ET PI	5Y 2Y	09.02.01-39
30PEB10AA029	Isolation Downstream KAA10 AC001	BF	MA	3	B	A	O	ET PI	5Y 2Y	
30PEB20AA027	Isolation Upstream KAA20 AC001	BF	MA	3	B	A	O	ET PI	5Y 2Y	
30PEB20AA029	Isolation Downstream KAA20 AC001	BF	MA	3	B	A	O	ET PI	5Y 2Y	
30PEB30AA027	Isolation Upstream KAA30 AC001	BF	MA	3	B	A	O	ET PI	5Y 2Y	
30PEB30AA029	Isolation Downstream KAA30 AC001	BF	MA	3	B	A	O	ET PI	5Y 2Y	
30PEB40AA027	Isolation Upstream KAA40 AC001	BF	MA	3	B	A	O	ET PI	5Y 2Y	
30PEB40AA029	Isolation Downstream KAA40 AC001	BF	MA	3	B	A	O	ET PI	5Y 2Y	
30PEB10AA190	Air Release from Filter 30PEB10AT002	RV	SA	3	C	A	O/C	ET LT PI	10Y 10Y 2Y	

Table 3.10-1—List of Seismically and Dynamically Qualified Mechanical and Electrical Equipment
(Sheet 88 of 197)

Name Tag (Equipment Description)	Tag Number	Local Area KKS ID (Room Location)	EQ Environment (Note 1)	Radiation Environment Zone (Note 2)	EQ Designated Function (Note 3)		Safety Class (Note 4)			EQ Program Designation (Note 5)	
V 2 Upstr *QN* Users	30KAB80AA016	31UJH10004	M	H	ES	SI	S		C/NM	Y (3)	Y (5)
V Dnstr *QN* Users	30KAB80AA019	31UJH10004	M	H	ES	SI	S		C/NM	Y (3)	Y (5)
CK-V Rten Com 1B NC	30KAB80AA020	31UJH10004	M	H	ES	SI	S		C/NM	Y (3)	Y (5)
V F KAB80 CF060	30KAB80AA314	31UJH10004	M	H	ES	SI	S		C/NM	Y (3)	Y (5)
V F KAB80 CF060	30KAB80AA315	31UJH10004	M	H	ES	SI	S		C/NM	Y (3)	Y (5)
V F KAB80 CF061	30KAB80AA316	31UJH10004	M	H	ES	SI	S		C/NM	Y (3)	Y (5)
V F KAB80 CF061	30KAB80AA317	31UJH10004	M	H	ES	SI	S		C/NM	Y (3)	Y (5)
D-V Sup Com1B NC	30KAB80AA403	31UJH10004	M	H	ES	SI	S		C/NM	Y (3)	Y (5)
D-V Retn Com1B NC	30KAB80AA406	31UJH10004	M	H	ES	SI	S		C/NM	Y (3)	Y (5)
D-V Retn Com1B NC	30KAB80AA407	31UJH10004	M	H	ES	SI	S		C/NM	Y (3)	Y (5)
V-V Sup Com1B NC	30KAB80AA501	31UJH10004	M	H	ES	SI	S		C/NM	Y (3)	Y (5)
V-V Retn Com1B NC	30KAB80AA504	31UJH10004	M	H	ES	SI	S		C/NM	Y (3)	Y (5)
F Upstr QNA21 AC002	30KAB80CF060	31UJH10004	M	H		SI	S		C/NM	Y (3)	Y (5)
F Dnstr KAB80 Chil	30KAB80CF061	31UJH10004	M	H		SI	S		C/NM	Y (3)	Y (5)
Essential Service Water System (ESWS)											
Isolation Upstream KAA10 AC001	30PEB10AA027	31UJH05026	M	H	ES	SI	S	SI	C/NM	Y(3)	Y(5)
Isolation Downstream KAA10 AC001	30PEB10AA029	31UJH05026	M	H	ES	SI	S	SI	C/NM	Y(3)	Y(5)
Isolation Upstream KAA20 AC001	30PEB20AA027	32UJH05020	M	H	ES	SI	S	SI	C/NM	Y(3)	Y(5)
Isolation Downstream KAA20 AC001	30PEB20AA029	32UJH05020	M	H	ES	SI	S	SI	C/NM	Y(3)	Y(5)
Isolation Upstream KAA30 AC001	30PEB30AA027	33UJH05020	M	H	ES	SI	S	SI	C/NM	Y(3)	Y(5)
Isolation Downstream KAA30 AC001	30PEB30AA029	33UJH05020	M	H	ES	SI	S	SI	C/NM	Y(3)	Y(5)
Isolation Upstream KAA40 AC001	30PEB40AA027	34UJH05026	M	H	ES	SI	S	SI	C/NM	Y(3)	Y(5)
Isolation Downstream KAA40 AC001	30PEB40AA029	34UJH05026	M	H	ES	SI	S	SI	C/NM	Y(3)	Y(5)
ESW Sample Isolation	30PEB10AA601	33UJH05020	M	H	ES	SI	S	SI	C/NM	Y(3)	Y(5)
ESW Sample Isolation	30PEB20AA601	34UJH05026	M	H	ES	SI	S	SI	C/NM	Y(3)	Y(5)
ESW Sample Isolation	30PEB30AA601	34UJH05026	M	H	ES	SI	S	SI	C/NM	Y(3)	Y(5)

09.02.01-39

Table 3.10-1—List of Seismically and Dynamically Qualified Mechanical and Electrical Equipment
(Sheet 89 of 197)

09.02.01-39

Name Tag (Equipment Description)	Tag Number	Local Area KKS ID (Room Location)	EQ Environment (Note 1)	Radiation Environment Zone (Note 2)	EQ Designated Function (Note 3)		Safety Class (Note 4)			EQ Program Designation (Note 5)	
ESW Sample Isolation	30PEB40AA601	33UJH05020	M	H	ES	SI	S	SI	C/NM	Y(3)	Y(5)
UHS Tower Keep-Fill Isolation Valve	30PED10AA024	31UQB02001	M	M	ES	SI	S	SI	C/NM		Y (5)
UHS Tower Keep-Fill Isolation Valve	30PED20AA024	32UQB02001	M	M	ES	SI	S	SI	C/NM		Y (5)
UHS Tower Keep-Fill Isolation Valve	30PED30AA024	33UQB02001	M	M	ES	SI	S	SI	C/NM		Y (5)
UHS Tower Keep-Fill Isolation Valve	30PED40AA024	34UQB02001	M	M	ES	SI	S	SI	C/NM		Y (5)
UHS Tower Keep-Fill Check Valve	30PED10AA025	31UQB02001	M	M	ES	SI	S	SI	C/NM		Y (5)
UHS Tower Keep-Fill Check Valve	30PED20AA025	32UQB02001	M	M	ES	SI	S	SI	C/NM		Y (5)
UHS Tower Keep-Fill Check Valve	30PED30AA025	33UQB02001	M	M	ES	SI	S	SI	C/NM		Y (5)
UHS Tower Keep-Fill Check Valve	30PED40AA025	34UQB02001	M	M	ES	SI	S	SI	C/NM		Y (5)
ESW Debris Filter	30PEB10AT002	31UQB02001	M	M	ES	SI	S		C/NM		Y (5)
ESW Debris Filter	30PEB20AT002	32UQB02001	M	M	ES	SI	S		C/NM		Y (5)
ESW Debris Filter	30PEB30AT002	33UQB02001	M	M	ES	SI	S		C/NM		Y (5)
ESW Debris Filter	30PEB40AT002	34UQB02001	M	M	ES	SI	S		C/NM		Y (5)
CCW HX Inlet Isolation Vlv	30PEB10AA007	31UJH05026	M	H		SI	S		C/NM	Y (3)	Y (5)
CCW HX Outlet Isolation Vlv	30PEB10AA009	31UJH05026	M	H		SI	S		C/NM	Y (3)	Y (5)
CCW HX Tube Side Thermal Relief Vlv	30PEB10AA192	31UJH05026	M	H		SI	S		C/NM	Y (3)	Y (5)
CCW HX Inlet Side DP Root Vlv	30PEB10AA306	31UJH10026	M	H		SI	S		C/NM	Y (3)	Y (5)
CCW HX Outlet Side DP Root Vlv	30PEB10AA307	31UJH10026	M	H		SI	S		C/NM	Y (3)	Y (5)
ESW Drain Isolation Vlv	30PEB10AA401	31UJH01026	M	H		SI	S		C/NM	Y (3)	Y (5)
ESW Drain Isolation Vlv	30PEB10AA402	31UJH10026	M	H		SI	S		C/NM	Y (3)	Y (5)
ESW Drain Isolation Vlv	30PEB10AA403	31UJH01026	M	H		SI	S		C/NM	Y (3)	Y (5)
ESW Drain Isolation Vlv	30PEB10AA405	31UJH01026	M	H		SI	S		C/NM	Y (3)	Y (5)
ESW Drain Isolation Vlv	30PEB10AA407	31UJH01026	M	H		SI	S		C/NM	Y (3)	Y (5)
ESW Drain Isolation Vlv	30PEB10AA408	31UJH01026	M	H		SI	S		C/NM	Y (3)	Y (5)
CCW HX Tube Side Vent Vlv	30PEB10AA508	31UJH10026	M	H		SI	S		C/NM	Y (3)	Y (5)
CCW HX Tube Side Vent Vlv	30PEB10AA509	31UJH10026	M	H		SI	S		C/NM	Y (3)	Y (5)
Orifice Plate	30PEB10BP002	31UJH05026	M	H		SI	S		C/NM	Y (3)	Y (5)
CCW HX DP Measurement	30PEB10CP004	31UJH05026	M	H		SI	S				Y (5)
CCW HX Outlet Temp Measurement	30PEB10CT002	31UJH05026	M	H		SI	S				Y (5)
SAQ HX DP Measurement	30PEB11CP001	31UQB02001	M	M		SI	S				Y (5)
SAQ HX Outlet Temp Measurement	30PEB11CT001	31UQB02001	M	M		SI	S				Y (5)
CCW HX Inlet Isolation Vlv	30PEB20AA007	32UJH05020	M	H		SI	S		C/NM	Y (3)	Y (5)
CCW HX Outlet Isolation Vlv	30PEB20AA009	32UJH05020	M	H		SI	S		C/NM	Y (3)	Y (5)

ESWS are powered by Class 1E electrical buses and are emergency powered by the EDGs.

The non-safety-related dedicated division contains a dedicated ESWS pump, debris filter, piping, valves, controls, and instrumentation. The non-safety related ESWS pumps cooling water from the division four UHS cooling tower basin to the dedicated CCWS HX and back to the division four UHS cooling tower during severe accidents (SA). The dedicated ESWS ~~pump~~train is powered by Class 1E electrical ~~buses~~Division 4 and is capable of being supplied by an EDG or a station blackout diesel generator (SBODG).

09.02.01-39

Refer to Section 12.3.6.5.7 for ~~essential service water system~~ESWS design features which demonstrate compliance with the requirements of 10 CFR 20.1406. Refer to Section 11.5 for process and effluent radiological monitoring and sampling within the ESWS.

9.2.1.3 Component Description

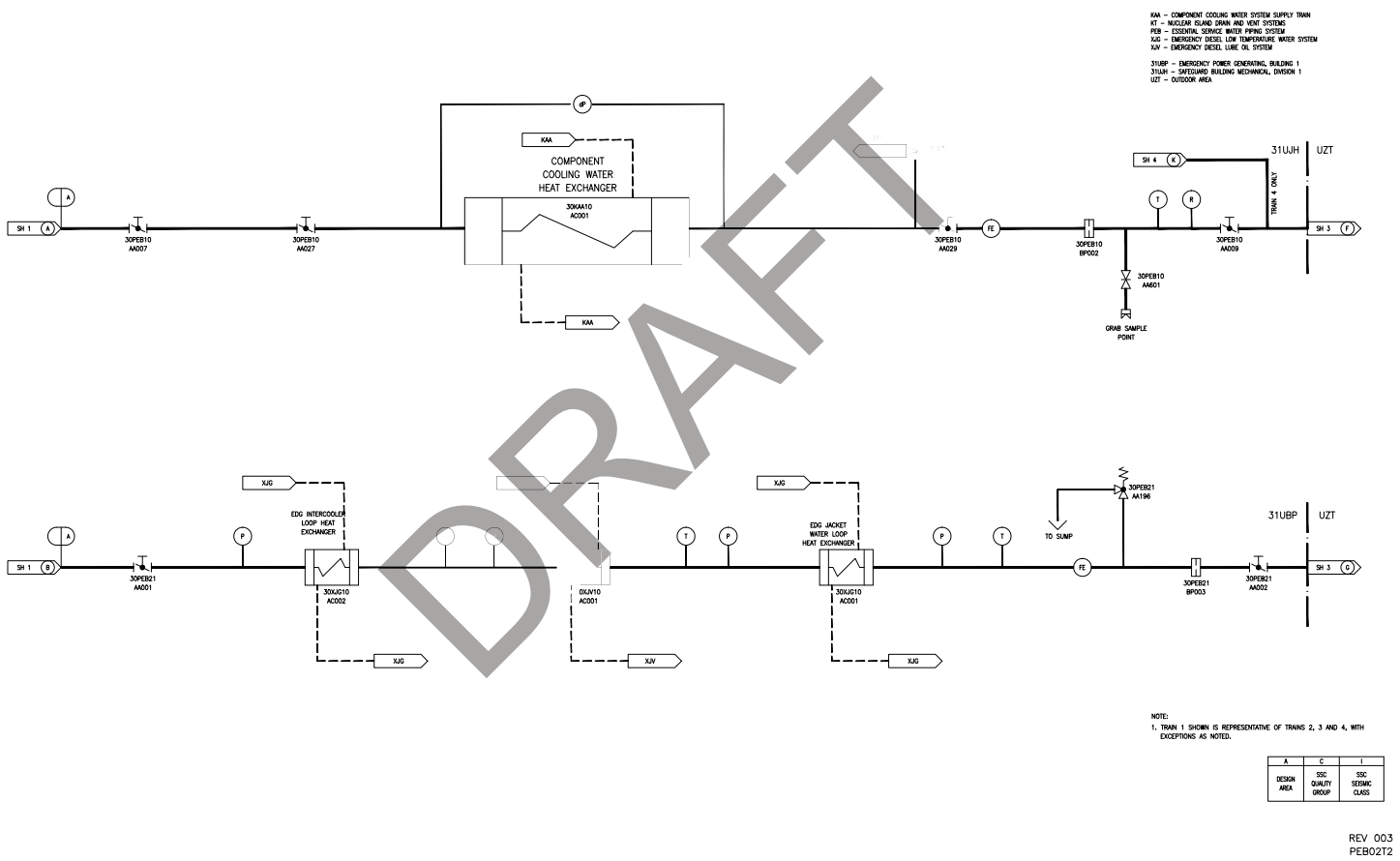
9.2.1.3.1 Safety-Related Essential Service Water Pumps

Each of the four safety-related cooling divisions contains one 100 percent capacity pump. During normal operating conditions, two of the four divisions are operating. The required flow rate of each ESWS pump is defined by the heat to be removed from the system loads. Design parameters are listed in Table 9.2.1-1. The pumps are designed to fulfill the corresponding minimal required design mass flow rate plus an additional minimum flow margin of approximately 12.5 percent, under the following conditions:

- Minimal water level without cavitation.
- Head losses in the cooling water inlet piping according to full power plant operation.
- Fluctuations in the supplied electrical frequency.
- Increased pipe roughness due to aging and fouling.
- Fouled debris filters.
- Maximum pressure drop through the system HXs.
- Minimum water level in cooling tower basin considers minimum submergence requirements to prevent vortex effects, and net positive suction head to prevent cavitation of the ESWS pump.
- Maximum allowable water level differential across the coarse and fine screens.

09.02.01-39

Figure 9.2.1-1—Essential Service Water System Piping & Instrumentation Diagram
Sheet 2 of 4



09.02.01-39

Figure 9.2.1-1—Essential Service Water System Piping & Instrumentation Diagram
Sheet 4 of 4

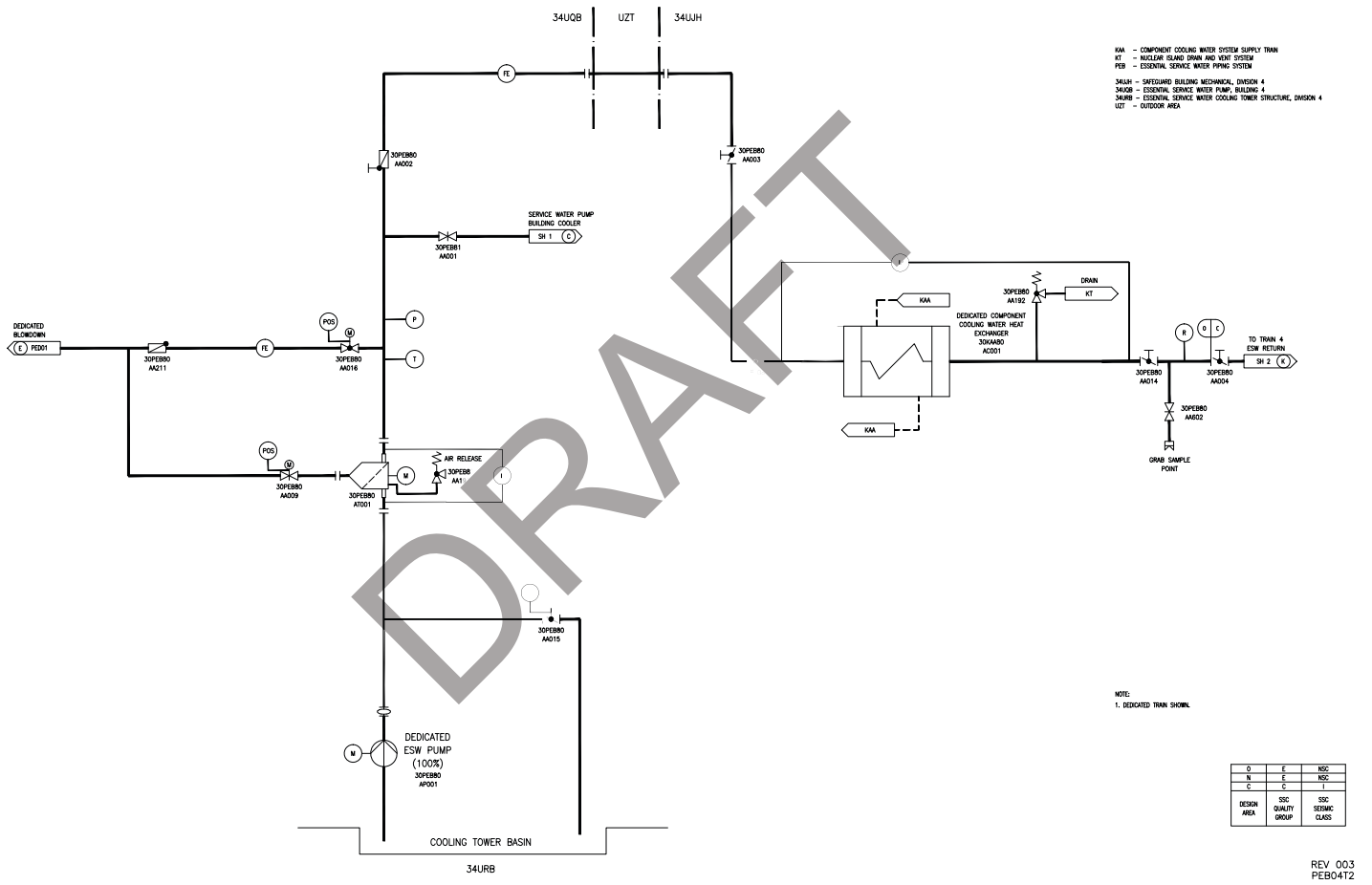


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Table 11.5-1—Radiation Monitor Detector Parameters
Sheet 12 of 12

Process System	Rad Meas Pt	Monitor Provisions			Sample Provisions		noble gas or N-16 monitor range	aerosol monitor range	iodine monitor range	liquid monitor range	Figure	Text	safety grade	check source
		In-Process continuous	ACF	In-Effluent continuous	In-Process grab sample	In-Effluent grab sample								
Essential Service Water System – Train Monitoring	R-66 PEB10CR001	Train 1 1 radiation monitor on CCWS HX Outlet	Alarm in the Control Room on high activity	none	sample and analysis, H-3 analysis	none	n/a	n/a	n/a	1E-6 - 1E-3 µCi/ml (Cs-137)	9.2.1-1, Sh.1 11.5-1	11.5.4 9.2.1.2	Non-safety	portable
	R-67 PEB20CR001	Train 2 1 radiation monitor on CCWS HX Outlet	Alarm in the Control Room on high activity	none	sample and analysis, H-3 analysis	none	n/a	n/a	n/a	1E-6 - 1E-3 µCi/ml (Cs-137)	9.2.1-1, Sh.2 11.5-1	11.5.4 9.2.1.2	Non-safety	portable
	R-68 PEP30CR001	Train 3 1 radiation monitor on CCWS HX Outlet	Alarm in the Control Room on high activity	none	sample and analysis, H-3 analysis	none	n/a	n/a	n/a	1E-6 - 1E-3 µCi/ml (Cs-137)	9.2.1-1, Sh.2 11.5-1	11.5.4 9.2.1.2	Non-safety	portable
	R-69 PEB40CR001	Train 4 1 radiation monitor on CCWS HX Outlet	Alarm in the Control Room on high activity	none	sample and analysis, H-3 analysis	none	n/a	n/a	n/a	1E-6 - 1E-3 µCi/ml (Cs-137)	9.2.1-1, Sh.2 11.5-1	11.5.4 9.2.1.2	Non-safety	portable
Essential Service Water System – Dedicated Train	R-70 PEB80CR001	Dedicated Train radiation monitor on CCWS HX Outlet	Alarm in the Control Room on high activity	none	sample and analysis, H-3 analysis	none	n/a	n/a	n/a	1E-6 - 1E-3 µCi/ml (Cs-137)	9.2.1-1, Sh.4 11.5-1	11.5.4 9.2.1.2	Non-safety	portable

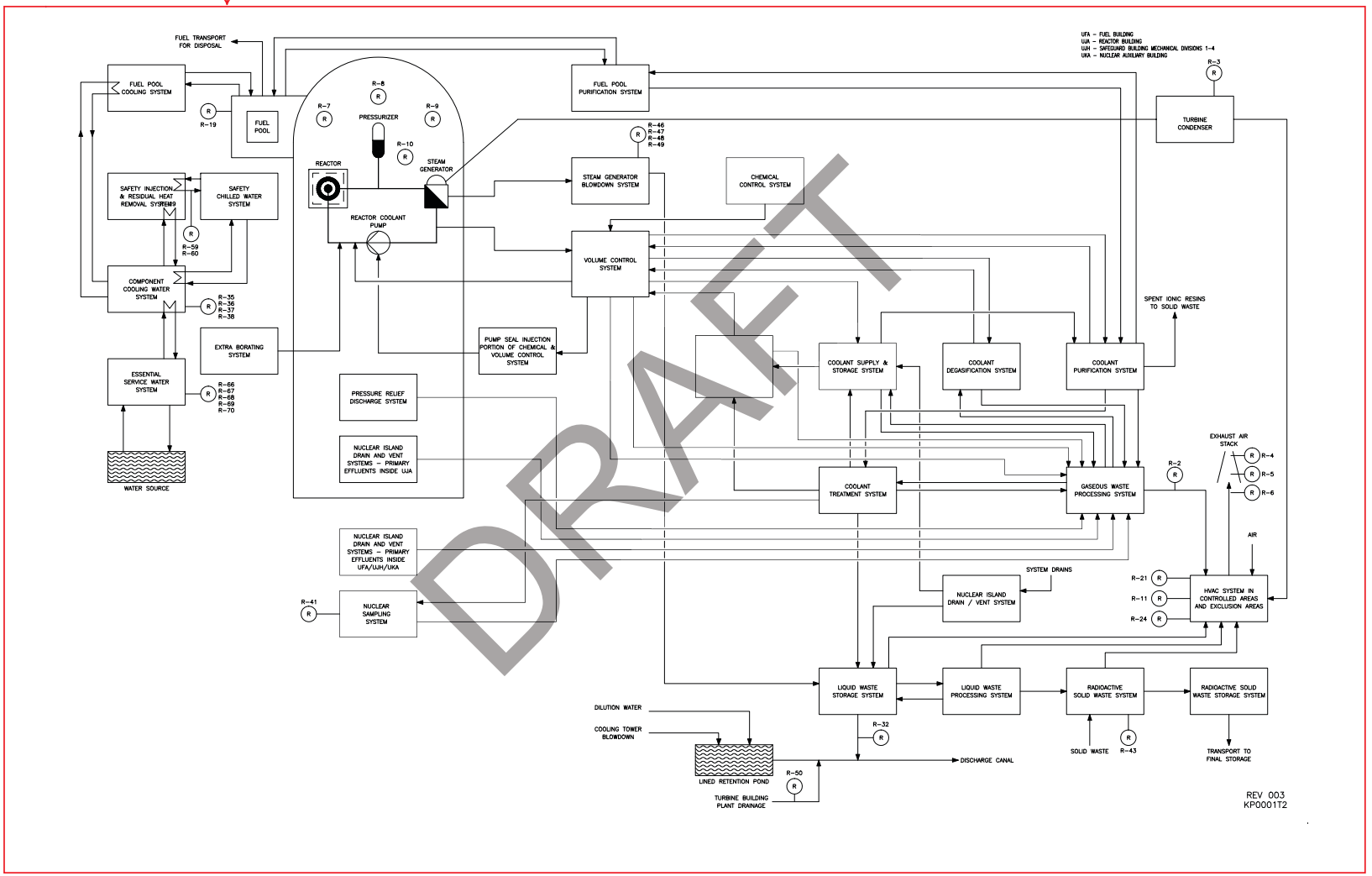
Notes:

1. This is a non-safety Automatic Control Feature which diverts flow to the KLE iodine filtration train.
2. Note that a containment isolation signal or high radiation from the in-containment high range monitors (i.e., an accident has occurred) will automatically divert SBVS and FBVS exhaust flow to the KLC accident exhaust filtration trains (Refer to Figure 9.4.5-2 for the SBVS and Figure 9.4.2-1 and Figure 9.4.5-2 for the FBVS). This is a separate iodine filtration train from the KLE iodine filtration train which is shown on Figure 9.4.3-4.
3. The Fuel Building exhaust (cells 4 & 5) and the Safeguard Building exhaust (cell 6) feed into the NABVS as shown on Figure 9.4.3-3. The radiation detector is very close to the boundary between the FBVS and NABVS and the boundary between the SBVS and NABVS. While the exhaust comes from the FBVS and SBVS, the radiation detectors and the automatic control features are within the NABVS. Hence, the diversion of exhaust to the NABVS iodine filtration train on high activity.
4. The clean drains are collected and routed to the main condenser.
5. Footnote 5 not used.

Next File

09.02.01-39

Figure 11.5-1—Radioactive Effluent Flow Paths With Process and Effluent Radiation Monitors



to accident mode operation, or switching between the air filtration trains). If the HVAC system design includes a bypass of the iodine filtration train, the radiation monitors are located upstream of the iodine filtration train. This allows the filtration trains to automatically swap from bypass to iodine filtration train to prevent escape of radioactive airborne particulate to the environment. In cases where the design does not include a bypass of the iodine filtration train, the radiation monitor is located downstream of the iodine filtration train to provide an alarm in the event that the iodine filter unit fails to operate correctly.

- HVAC filters, heaters and cooling coils are located inside a housing which is designed for a minimal amount of air in-leakage to control airborne contamination. During operation, a negative pressure with respect to the adjoining environment is created in the housing. This prevents radioactive material from reaching the environment as a result of filter element failure. The housing and filters are designed, fabricated and tested in accordance with ASME AG-1.

12.3.6.5.7 Essential Service Water System

The essential service water system (ESWS) is designed to minimize contamination of the facility and the environment as described in the general protective design features listed in Sections 12.3.6.1 and 12.3.6.2.

The ESWS is free of radioactivity resulting from plant operation. The ESWS design is consistent with the U.S. EPR contaminant management philosophy in compliance with 10 CFR 20.1406. Migration of radioactive material from potentially radioactive systems is prevented with a minimum of two barriers. The ESWS supplies water to the CCWS heat exchangers (HX) and returns the water to the ultimate heat sink (UHS) cooling tower basins. The CCWS is between the ESWS and RHRS. In addition to the CCWS/ESWS HX, there is a second HX barrier between the CCWS and RHRS. Radiation monitors in the CCWS detect radioactive contaminants migrating through the system. In addition to the two barriers between the ESWS and RHRS, and the radiation monitoring provided in the CCWS, an additional radiation monitor and sampling point are provided downstream of the CCWS HX in ESWS Trains 10/20/30/40 and the dedicated train to detect potential leakage within the heat exchanger equipment. The location of the monitors represents the closest location to the point of potential contamination. Two valves in series upstream and downstream of the CCWS HX provide full isolation of the potentially contaminated ESWS loop. To prevent spreading of contamination, consistent with 10 CFR 20.1406, isolation of the ESWS is performed in the Safeguard Building before the potentially contaminated fluid exits the building. ~~With two barriers between the ESWS and RHRS, as well as radiation monitoring provisions provided in the CCWS, additional radiation monitors in the ESWS design are not required.~~

09.02.01-39