ArevaEPRDCPEm Resource

From:	McLellan, Judith
Sent:	Friday, September 07, 2012 2:36 PM
To:	ArevaEPRDCPEm Resource
Subject:	FW: Response to U.S. EPR Design Certification Application RAI No. 461, FSAR Ch. 9, Supplement 9
Attachments:	RAI 461 Supplement 9 Response US EPR DC.pdf

From: WILLIFORD Dennis (AREVA) [mailto:Dennis.Williford@areva.com]
Sent: Friday, March 23, 2012 2:30 PM
To: Tesfaye, Getachew
Cc: BENNETT Kathy (AREVA); DELANO Karen (AREVA); ROMINE Judy (AREVA); RYAN Tom (AREVA); KOWALSKI David (AREVA)
Subject: Response to U.S. EPR Design Certification Application RAI No. 461, FSAR Ch. 9, Supplement 9

Getachew,

AREVA NP Inc. provided a schedule for technically correct and complete responses to the eight questions in RAI No. 461 on March 2, 2011. Supplement 1, Supplement 2, Supplement 3, Supplement 4, Supplement 5 and Supplement 6 responses to RAI No. 461 were sent on April 29, 2011, June 8, 2011, July 7, 2011, August 12, 2011, September 13, 2011 and October 13, 2011, respectively, to provide a revised schedule. Supplement 7 response to RAI No. 461 was sent on November 18, 2011 to provide technically correct and complete final responses to Questions 09.04.01-4, 09.04.01-5, 09.04.03-5, 09.04.05-3 and 09.04.05-4 and a revised schedule for the remaining three questions. Supplement 8 response to RAI No. 461 was sent on February 13, 2012 to provide a revised schedule for the remaining three questions.

The attached file, “RAI 461 Supplement 9 Response US EPR DC.pdf” provides a technically correct and complete final response to the remaining 3 questions (Questions 09.04.01-3, 09.04.03-4 and 09.04.03-6).

Appended to this file are affected pages of the U.S. EPR Final Safety Analysis Report in redline-strikeout format which support the responses to RAI 461 Questions 09.04.01-3, 09.04.03-4 and 09.04.03-6.

The following table indicates the respective pages in the response document, “RAI 461 Supplement 9 Response US EPR DC.pdf,” that contain AREVA NP’s response to the subject questions.

Question #	Start Page	End Page
RAI 461 — 09.04.01-3	2	3
RAI 461 — 09.04.03-4	4	5
RAI 461 — 09.04.03-6	6	7

This concludes the formal AREVA NP response to RAI 461, and there are no questions from this RAI for which AREVA NP has not provided responses.

Sincerely,

Dennis Williford, P.E.
U.S. EPR Design Certification Licensing Manager
AREVA NP Inc.
7207 IBM Drive, Mail Code CLT 2B
Charlotte, NC 28262

Phone: 704-805-2223
Email: Dennis.Williford@areva.com

From: WILLIFORD Dennis (RS/NB)
Sent: Monday, February 13, 2012 5:34 PM
To: Getachew.Tesfaye@nrc.gov
Cc: BENNETT Kathy (RS/NB); DELANO Karen (RS/NB); ROMINE Judy (RS/NB); RYAN Tom (RS/NB); KOWALSKI David (RS/NB)
Subject: Response to U.S. EPR Design Certification Application RAI No. 461, FSAR Ch. 9, Supplement 8

Getachew,

AREVA NP Inc. provided a schedule for technically correct and complete responses to the eight questions in RAI No. 461 on March 2, 2011. Supplement 1, Supplement 2, Supplement 3, Supplement 4, Supplement 5 and Supplement 6 responses to RAI No. 461 were sent on April 29, 2011, June 8, 2011, July 7, 2011, August 12, 2011, September 13, 2011 and October 13, 2011, respectively, to provide a revised schedule. Supplement 7 response to RAI No. 461 was sent on November 18, 2011 to provide technically correct and complete final responses to 5 questions and a revised schedule for the remaining 3 questions.

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

Question #	**Response Date**
RAI 461 — 09.04.01-3	**March 23, 2012**
RAI 461 — 09.04.03-4	**March 23, 2012**
RAI 461 — 09.04.03-6	**March 23, 2012**

Sincerely,

Dennis Williford, P.E.
U.S. EPR Design Certification Licensing Manager
AREVA NP Inc.
7207 IBM Drive, Mail Code CLT 2B
Charlotte, NC 28262
Phone: 704-805-2223
Email: Dennis.Williford@areva.com

From: WILLIFORD Dennis (RS/NB)
Sent: Friday, November 18, 2011 2:24 PM
To: Getachew.Tesfaye@nrc.gov
Cc: BENNETT Kathy (RS/NB); DELANO Karen (RS/NB); ROMINE Judy (RS/NB); RYAN Tom (RS/NB); KOWALSKI David (RS/NB)
Subject: Response to U.S. EPR Design Certification Application RAI No. 461, FSAR Ch. 9, Supplement 7

Getachew,

AREVA NP Inc. provided a schedule for technically correct and complete responses to the eight questions in RAI No. 461 on March 2, 2011. Supplement 1, Supplement 2, Supplement 3, Supplement 4, Supplement 5 and Supplement 6 responses to RAI No. 461 were sent on April 29, 2011, June 8, 2011, July 7, 2011, August 12, 2011, September 13, 2011 and October 13, 2011, respectively, to provide a revised schedule.

The attached file, "RAI 461 Supplement 7 Response US EPR DC.pdf" provides technically correct and complete final responses to five questions (Questions 09.04.01-4, 09.04.01-5, 09.04.03-5, 09.04.05-3 and 09.04.05-4).

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 461 Questions 09.04.03-5, 09.04.05-3 and 09.04.05-4.

The following table indicates the respective pages in the response document, "RAI 461 Supplement 7 Response US EPR DC.pdf," that contain AREVA NP's response to the subject questions.

Question #	Start Page	End Page
RAI 461 — 09.04.01-4	2	2
RAI 461 — 09.04.01-5	3	3
RAI 461 — 09.04.03-5	4	5
RAI 461 — 09.04.05-3	6	7
RAI 461 — 09.04.05-4	8	8

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

Question #	Response Date
RAI 461 — 09.04.01-3	**February 15, 2012**
RAI 461 — 09.04.03-4	**February 15, 2012**
RAI 461 — 09.04.03-6	**February 15, 2012**

Sincerely,

Dennis Williford, P.E.
U.S. EPR Design Certification Licensing Manager
AREVA NP Inc.
7207 IBM Drive, Mail Code CLT 2B
Charlotte, NC 28262
Phone: 704-805-2223
Email: Dennis.Williford@areva.com

From: WILLIFORD Dennis (RS/NB)
Sent: Thursday, October 13, 2011 4:17 PM
To: Getachew.Tesfaye@nrc.gov
Cc: BENNETT Kathy (RS/NB); DELANO Karen (RS/NB); ROMINE Judy (RS/NB); RYAN Tom (RS/NB); KOWALSKI David (RS/NB)
Subject: Response to U.S. EPR Design Certification Application RAI No. 461, FSAR Ch. 9, Supplement 6

Getachew,

AREVA NP Inc. provided a schedule for technically correct and complete responses to the eight questions in RAI No. 461 on March 2, 2011. Supplement 1, Supplement 2, Supplement 3, Supplement 4 and Supplement 5 responses to RAI No. 461 were sent on April 29, 2011, June 8, 2011, July 7, 2011, August 12, 2011 and September 13, 2011, respectively, to provide a revised schedule.

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

Question #	Response Date
RAI 461 — 09.04.01-3	**November 18, 2011**
RAI 461 — 09.04.01-4	**November 18, 2011**
RAI 461 — 09.04.01-5	**November 18, 2011**
RAI 461 — 09.04.03-4	**November 18, 2011**
RAI 461 — 09.04.03-5	**November 18, 2011**
RAI 461 — 09.04.03-6	**November 18, 2011**
RAI 461 — 09.04.05-3	**November 18, 2011**
RAI 461 — 09.04.05-4	**November 18, 2011**

Sincerely,

Dennis Williford, P.E.
U.S. EPR Design Certification Licensing Manager
AREVA NP Inc.
7207 IBM Drive, Mail Code CLT 2B
Charlotte, NC 28262
Phone: 704-805-2223
Email: Dennis.Williford@areva.com

From: WILLIFORD Dennis (RS/NB)
Sent: Tuesday, September 13, 2011 4:41 PM
To: Getachew.Tesfaye@nrc.gov
Cc: BENNETT Kathy (RS/NB); DELANO Karen (RS/NB); ROMINE Judy (RS/NB); RYAN Tom (RS/NB); KOWALSKI David (RS/NB)
Subject: Response to U.S. EPR Design Certification Application RAI No. 461, FSAR Ch. 9, Supplement 5

Getachew,

AREVA NP Inc. provided a schedule for technically correct and complete responses to the eight questions in RAI No. 461 on March 2, 2011. Supplement 1, Supplement 2, Supplement 3 and Supplement 4 responses to RAI No. 461 were sent on April 29, 2011, June 8, 2011, July 7, 2011 and August 12, 2011, respectively, to provide a revised schedule.

The schedule for technically correct and complete final responses to the eight questions has been changed and is provided below.

Question #	Response Date
RAI 461 — 09.04.01-3	**October 13, 2011**
RAI 461 — 09.04.01-4	**October 13, 2011**
RAI 461 — 09.04.01-5	**October 13, 2011**

RAI 461 — 09.04.03-4	**October 13, 2011**
RAI 461 — 09.04.03-5	**October 13, 2011**
RAI 461 — 09.04.03-6	**October 13, 2011**
RAI 461 — 09.04.05-3	**October 13, 2011**
RAI 461 — 09.04.05-4	**October 13, 2011**

Sincerely,

Dennis Williford, P.E.
U.S. EPR Design Certification Licensing Manager
AREVA NP Inc.
7207 IBM Drive, Mail Code CLT 2B
Charlotte, NC 28262
Phone: 704-805-2223
Email: Dennis.Williford@areva.com

From: WILLIFORD Dennis (RS/NB)
Sent: Friday, August 12, 2011 3:21 PM
To: Getachew.Tesfaye@nrc.gov
Cc: BENNETT Kathy (RS/NB); DELANO Karen (RS/NB); ROMINE Judy (RS/NB); RYAN Tom (RS/NB); KOWALSKI David (RS/NB)
Subject: Response to U.S. EPR Design Certification Application RAI No. 461, FSAR Ch. 9, Supplement 4

Getachew,

AREVA NP Inc. provided a schedule for technically correct and complete responses to the eight questions in RAI No. 461 on March 2, 2011. Supplement 1, Supplement 2 and Supplement 3 responses to RAI No. 461 were sent on April 29, 2011, June 8, 2011 and July 7, 2011, respectively, to provide a revised schedule.

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

Question #	**Response Date**
RAI 461 — 09.04.01-3	**September 13, 2011**
RAI 461 — 09.04.01-4	**September 13, 2011**
RAI 461 — 09.04.01-5	**September 13, 2011**
RAI 461 — 09.04.03-4	**September 13, 2011**
RAI 461 — 09.04.03-5	**September 13, 2011**
RAI 461 — 09.04.03-6	**September 13, 2011**
RAI 461 — 09.04.05-3	**September 13, 2011**
RAI 461 — 09.04.05-4	**September 13, 2011**

Sincerely,

Dennis Williford, P.E.
U.S. EPR Design Certification Licensing Manager
AREVA NP Inc.
7207 IBM Drive, Mail Code CLT 2B

Charlotte, NC 28262
Phone: 704-805-2223
Email: Dennis.Williford@areva.com

From: WILLIFORD Dennis (RS/NB)
Sent: Thursday, July 07, 2011 4:39 PM
To: 'Tesfaye, Getachew'
Cc: BENNETT Kathy (RS/NB); DELANO Karen (RS/NB); ROMINE Judy (RS/NB); RYAN Tom (RS/NB); KOWALSKI David (RS/NB)
Subject: Response to U.S. EPR Design Certification Application RAI No. 461, FSAR Ch. 9, Supplement 3

Getachew,

AREVA NP Inc. provided a schedule for technically correct and complete responses to the eight questions in RAI No. 461 on March 2, 2011. Supplement 1 and Supplement 2 responses to RAI No. 461 were sent on April 29, 2011 and June 8, 2011, respectively, to provide a revised schedule.

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

Question #	Response Date
RAI 461 — 09.04.01-3	**August 12, 2011**
RAI 461 — 09.04.01-4	**August 12, 2011**
RAI 461 — 09.04.01-5	**August 12, 2011**
RAI 461 — 09.04.03-4	**August 12, 2011**
RAI 461 — 09.04.03-5	**August 12, 2011**
RAI 461 — 09.04.03-6	**August 12, 2011**
RAI 461 — 09.04.05-3	**August 12, 2011**
RAI 461 — 09.04.05-4	**August 12, 2011**

Sincerely,

Dennis Williford, P.E.
U.S. EPR Design Certification Licensing Manager
AREVA NP Inc.
7207 IBM Drive, Mail Code CLT 2B
Charlotte, NC 28262
Phone: 704-805-2223
Email: Dennis.Williford@areva.com

From: WILLIFORD Dennis (RS/NB)
Sent: Wednesday, June 08, 2011 8:00 AM
To: 'Tesfaye, Getachew'
Cc: BENNETT Kathy (RS/NB); DELANO Karen (RS/NB); ROMINE Judy (RS/NB); RYAN Tom (RS/NB); KOWALSKI David (RS/NB)
Subject: Response to U.S. EPR Design Certification Application RAI No. 461, FSAR Ch. 9, Supplement 2

Getachew,

AREVA NP Inc. provided a schedule for technically correct and complete responses to the eight questions in RAI No. 461 on March 2, 2011. Supplement 1 response to RAI No. 461 was sent on April 29, 2011 to provide a revised schedule.

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

Question #	Response Date
RAI 461 — 09.04.01-3	July 8, 2011
RAI 461 — 09.04.01-4	July 8, 2011
RAI 461 — 09.04.01-5	July 8, 2011
RAI 461 — 09.04.03-4	July 8, 2011
RAI 461 — 09.04.03-5	July 8, 2011
RAI 461 — 09.04.03-6	July 8, 2011
RAI 461 — 09.04.05-3	July 8, 2011
RAI 461 — 09.04.05-4	July 8, 2011

Sincerely,

Dennis Williford, P.E.
U.S. EPR Design Certification Licensing Manager
AREVA NP Inc.
7207 IBM Drive, Mail Code CLT 2B
Charlotte, NC 28262
Phone: 704-805-2223
Email: Dennis.Williford@areva.com

From: WELLS Russell (RS/NB)
Sent: Friday, April 29, 2011 8:11 AM
To: Tesfaye, Getachew
Cc: KOWALSKI David (RS/NB); BENNETT Kathy (RS/NB); DELANO Karen (RS/NB); ROMINE Judy (RS/NB); RYAN Tom (RS/NB)
Subject: Response to U.S. EPR Design Certification Application RAI No. 461, FSAR Ch. 9, Supplement 1

Getachew,

AREVA NP Inc. provided a schedule for technically correct and complete responses to the eight questions in RAI No. 461 on March 2, 2011.

To provide additional time to interact with the NRC, a revised schedule is provided in this e-mail.

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

Question #	Response Date
RAI 461 — 09.04.01-3	June 8, 2011
RAI 461 — 09.04.01-4	June 8, 2011
RAI 461 — 09.04.01-5	June 8, 2011

RAI 461 — 09.04.03-4	June 8, 2011
RAI 461 — 09.04.03-5	June 8, 2011
RAI 461 — 09.04.03-6	June 8, 2011
RAI 461 — 09.04.05-3	June 8, 2011
RAI 461 — 09.04.05-4	June 8, 2011

Sincerely,

Russ Wells
U.S. EPR Design Certification Licensing Manager
AREVA NP, Inc.
3315 Old Forest Road, P.O. Box 10935
Mail Stop OF-57
Lynchburg, VA 24506-0935
Phone: 434-832-3884 (work)
434-942-6375 (cell)
Fax: 434-382-3884
Russell.Wells@Areva.com

From: WELLS Russell (RS/NB)
Sent: Wednesday, March 02, 2011 2:14 PM
To: 'Tesfaye, Getachew'
Cc: BENNETT Kathy (RS/NB); DELANO Karen (RS/NB); ROMINE Judy (RS/NB); KOWALSKI David (RS/NB)
Subject: Response to U.S. EPR Design Certification Application RAI No. 461, FSAR Ch. 9

Getachew,

Attached please find AREVA NP Inc.'s response to the subject request for additional information (RAI). The attached file, "RAI 461 Response US EPR DC," provides a schedule since technically correct and complete responses to the eight questions are not provided.

The following table indicates the respective pages in the response document, "RAI 461 Response US EPR DC.pdf," that contain AREVA NP's response to the subject questions.

Question #	Start Page	End Page
RAI 461 — 09.04.01-3	2	2
RAI 461 — 09.04.01-4	3	3
RAI 461 — 09.04.01-5	4	4
RAI 461 — 09.04.03-4	5	5
RAI 461 — 09.04.03-5	6	6
RAI 461 — 09.04.03-6	7	7
RAI 461 — 09.04.05-3	8	8
RAI 461 — 09.04.05-4	9	9

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

Question #	Response Date
RAI 461 — 09.04.01-3	April 29, 2011
RAI 461 — 09.04.01-4	April 29, 2011
RAI 461 — 09.04.01-5	April 29, 2011
RAI 461 — 09.04.03-4	April 29, 2011
RAI 461 — 09.04.03-5	April 29, 2011
RAI 461 — 09.04.03-6	April 29, 2011
RAI 461 — 09.04.05-3	April 29, 2011
RAI 461 — 09.04.05-4	April 29, 2011

Sincerely,

Russ Wells
U.S. EPR Design Certification Licensing Manager
AREVA NP, Inc.
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Lynchburg, VA 24506-0935
Phone: 434-832-3884 (work)
434-942-6375 (cell)
Fax: 434-382-3884
Russell.Wells@Areva.com

From: Tesfaye, Getachew [mailto:Getachew.Tesfaye@nrc.gov]
Sent: Thursday, February 03, 2011 10:29 AM
To: ZZ-DL-A-USEPR-DL
Cc: ODriscoll, James; Jackson, Christopher; McKirgan, John; Hearn, Peter; Colaccino, Joseph; ArevaEPRDCPEm Resource
Subject: U.S. EPR Design Certification Application RAI No. 461(5223, 5292, 5293), FSAR Ch. 9

Attached please find the subject requests for additional information (RAI). A draft of the RAI was provided to you on December 8, 2010, and on February 3, 2011, 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: 4026

Mail Envelope Properties (A41C2340DAB39B44AD0B9623285CB3337FA7572E35)

Subject: FW: Response to U.S. EPR Design Certification Application RAI No. 461, FSAR Ch. 9, Supplement 9
Sent Date: 9/7/2012 2:36:28 PM
Received Date: 9/7/2012 2:36:31 PM
From: McLellan, Judith

Created By: Judith.McLellan@nrc.gov

Recipients:
"ArevaEPRDCPEm Resource" <ArevaEPRDCPEm.Resource@nrc.gov>
Tracking Status: None

Post Office: HQCLSTR02.nrc.gov

Files	**Size**	**Date & Time**
MESSAGE	18063	9/7/2012 2:36:31 PM
RAI 461 Supplement 9 Response US EPR DC.pdf		1086501

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

Response to

Request for Additional Information No. 461 (5223, 5292, 5293), Supplement 9

2/3/2011

U.S. EPR Standard Design Certification
AREVA NP Inc.
Docket No. 52-020
SRP Section: 09.04.01 - Control Room Area Ventilation System
SRP Section: 09.04.03 - Auxiliary and Radwaste Area Ventilation System
SRP Section: 09.04.05 - Engineered Safety Feature Ventilation System

Application Section: 9.4.

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

Question 09.04.01-3:

One of the safety-related functions of the SBVSE described in FSAR Tier 2, Section 9.4.6 is to maintain hydrogen concentration below allowable limits. EPR Tier 1 states that the Electrical Division of the Safeguards Building Ventilation System (SBVSE) provides the safety-related function of providing ventilation for the battery rooms, and Hydrogen concentrations are to remain below "allowable limits during accident conditions". Existing ITACC Tables have line items solely for battery room temperature alarms, displays controls. There exists an ITAAC requirement to 1) verify battery room coil size via inspection and 2) Perform a test to verify room is maintained between specified limits, verify outside air supply fan flow rate and recirculation flow rate are at specified values.

There is no proposed ITAAC for the tier 1 design commitment to maintain hydrogen control below any numerical criteria. In addition, the Tier 2 section 9.4.6 does not describe methods by which this safety-related design basis function is achieved, nor reference associated NRC guidance such as RG 1.128. The NRC staff considers that hydrogen concentration should be maintained below allowable limits both during normal and accident conditions. Therefore, discuss:

a. Controlling the hydrogen concentrations during both normal and during accident conditions.

b. Provide the design basis allowable limits are for the battery rooms, and justify these limits. Discuss the use of the applicable regulatory guidance (RG 1.128) in establishing these limits, and

c. Describe the verification program that will assure the system's capability to control hydrogen concentration. Also,

d. Propose an ITAAC to demonstrate, via test or analysis, that the exhaust ventilation from the battery rooms is sufficient to assure that acceptable hydrogen concentrations are maintained. Define specific acceptance criteria.

e. Revise Tier 1 and 2 as appropriate.

Response to Question 09.04.01-3:

a. U.S. EPR FSAR Tier 1, Section 2.6.7 and Table 2.6.7-3–Electrical Division of Safeguard Building Ventilation System ITAAC, were revised in Revision 3 to state:

   > "The SBVSE maintains the hydrogen concentration levels in the battery rooms below 1% by volume."

   U.S. EPR FSAR Tier 2, Section 9.4.6.1, was revised in Revision 3 to indicate that the SBVSE maintains the hydrogen concentration levels in the battery rooms below the maximum allowable limits of RG 1.128 and IEEE Standard 484.

   U.S. EPR FSAR Tier 2, Section 9.4.6.6, was revised in Revision 3 to include two additional references: (1) RG 1.128, and (2) IEEE Standard 484.

b. The battery rooms are designed to maintain hydrogen concentration levels at less than one percent by volume, in accordance with the guidelines in RG 1.128 and IEEE Standard 484. Testing will be performed to verify that the air flow exhausted from the battery rooms is greater than or equal to the required design air flow rate.

c. See the Response to Question 09.04.01-3, Part (a).

d. See the Response to Question 09.04.01-3, Part (a).

e. U.S. EPR FSAR Tier 1, Section 2.6.7 and Table 2.6.7-3; and U.S. EPR FSAR Tier 2, Sections 9.4.6.1 and 9.4.6.6, were revised in Revision 3 to incorporate information from the response.

To support changes to U.S. EPR FSAR Tier 1, Section 2.6.7 and Table 2.6.7-3, U.S. EPR FSAR Tier 2, Section 9.4.6.1, will be revised to include the following statement:

> "The SBVSE maintains hydrogen concentration levels in the battery rooms below one percent by volume."

U.S. EPR FSAR Tier 2, Table 1.9-2–U.S. EPR Conformance with Regulatory Guides, will be revised to reflect RG 1.128 cross-referencing U.S. EPR FSAR Tier 2, Section 9.4.6.1.

U.S. EPR FSAR Tier 2, Chapter 16, Technical Specifications, Section 3.7.12, has been revised to include a new surveillance requirement (SR) for the safeguard building (Controlled Area) ventilation system (SBVS), which will verify that the safety-related SBVS recirculation coolers that cool the hot mechanical areas are capable of removing the design heat load. This new SR 3.7.12.8 is consistent with existing SR 3.7.13.2, which verifies that each train of the SBVSE Division has the capability to remove the design heat load.

U.S. EPR FSAR Tier 2, Chapter 16, Technical Specifications, Section 3.7.12, and associated Basis will be revised to include new SR, B 3.7.12.8.

FSAR Impact:

U.S. EPR FSAR Tier 2, Table 1.9-2, Section 9.4.6.1, and Chapter 16, Technical Specifications, Section 3.7.12 and associated Basis, will be revised as described in the response and indicated on the enclosed markup.

U.S. EPR FSAR Tier 1, Section 2.6.7 and Table 2.6.7-3; and U.S. EPR FSAR Tier 2, Sections 9.4.6.1 and 9.4.6.6, were revised in Revision 3 as described in the response and indicated on the enclosed markup.

Question 09.04.03-4:

In FSAR revision 2 Tier 2, Section 9.4.3., you state the following:

> "The exhaust air from the NAB, FB, Safeguard Building (SB), Containment Building and the annulus is processed through the NABVS filtration trains prior to release to the environment via the vent stack."

In FSAR revision 2 Tier 2, Section 9.4.3.1, you state the following:

> "The NABVS performs no safety-related functions and the system is not required to operate during a design basis accident."

A review of Figure 9.4.3-3 apparently shows the FB and vent stack as non seismic and non safety related structures. This conflicts with Table 3.2.2.1-1 for those structures. Since the plant stack is used by safety related ventilation systems such as the AVS, this structure should be correctly designated on this figure as safety-related and Seismic Category 1. Since the vent stack is part of the AVS, which is relied upon to establish a negative pressure in the annulus and fission product removal after a design basis accident, the Quality group for the vent stack should be Quality Group B.

1. Clarify Figure 9.4.3-3 to indicate that the plant stack, which serves as the exhaust path of the FBVS, is SSC seismic Class 1 and SSC Quality Group B, and a safety-related portion of the system.
2. Clarify the Seismic and Quality Classification breaks for the vent stack as they are shown in the FSAR in the same manner for the following Systems/ P&IDs:
    a. Safeguard Building Controlled-Area Ventilation System Figure 9.4.5-2
    b. Radioactive Waste Exhaust/ Figure 9.4.8-2
    c. Reactor Building Exhaust/ Figure 9.4.7-2
    d. Annulus Accident Filtration Train Exhaust/ Figure 6.2.3-2

Response to Question 09.04.03-4:

1. The safety and seismic classification of the plant vent stack have been upgraded to safety-related, Seismic Category I. This change reflects the installation of a safety-related backdraft damper in the discharge of the nuclear auxiliary building ventilation system (NABVS) exhaust to the vent stack. This backdraft damper will close during accident conditions to isolate the non-safety-related portions of the NABVS from the safety-related plant vent stack. The quality group for the heating, ventilation and air conditioning (HVAC) ducting will be shown as N/A, per the guidelines of RG 1.26.

    U.S. EPR FSAR Tier 2, Section 9.4.3.1, was revised in Revision 3 to include the safety-related function of the NABVS.

    U.S. EPR FSAR Tier 2, Section 9.4.3.1, will be revised to provide further clarification of the safety-related function of the NABVS.

    U.S. EPR FSAR Tier 2, Section 9.4.3.3, will be revised to include the safety-related backdraft damper.

U.S. EPR FSAR Tier 2, Figure 9.4.3-3—Nuclear Auxiliary Building Exhaust Filtration Trains Subsystem will be revised to reflect the change in safety and seismic classification of the backdraft damper located in the NABVS exhaust at the plant vent stack.

U.S. EPR FSAR Tier 2, Table 3.2.2-1—Classification Summary, and Table 3.10-1—List of Seismically and Dynamically Qualified Mechanical and Electrical Equipment will be revised to reflect the change in safety and seismic classification of the backdraft damper located in the NABVS exhaust at the plant vent stack.

2. The following clarifications for the vent stack will be made for selected U.S. EPR FSAR figures:

   a. U.S. EPR FSAR Tier 2, Figure 9.4.5-2—Safeguard Building Controlled-Area Ventilation System Exhaust Air Subsystem will be revised to clarify seismic and quality classification breaks for the vent stack.

   b. U.S. EPR FSAR Tier 2, Figure 9.4.8-2—Radioactive Waste Building Ventilation System Exhaust Air Station will be revised to clarify seismic and quality classification breaks for the vent stack.

   c. U.S. EPR FSAR Tier 2, Figure 9.4.7-2—Containment Building Low Flow and Full Flow Purge Exhaust Subsystem will be revised to clarify seismic and quality classification breaks for the vent stack.

   d. U.S. EPR FSAR Tier 2, Figure 6.2.3-2—AVS Accident Trains will be revised to clarify seismic and quality classification breaks for the vent stack.

To support the change in the safety and seismic classification of the backdraft damper in the discharge of the NABVS exhaust to the plant vent stack, a new U.S. EPR FSAR Tier 1, Section 2.6.5 has been created. This includes new U.S. EPR FSAR Tier 1, Tables 2.6.5-1—Nuclear Auxiliary Building Ventilation System Equipment Mechanical Design, and 2.6.5-2—Nuclear Auxiliary Building Ventilation System ITAAC, and a new U.S. EPR FSAR Tier 1, Figure 2.6.5-1—Nuclear Auxiliary Building Exhaust Filtration Trains Subsystem Functional Arrangement.

FSAR Impact:

U.S. EPR FSAR Tier 1, Section 2.6.5 will be revised as described in the response and indicated on the enclosed markup.

U.S. EPR FSAR Tier 2, Sections 9.4.3.1 and 9.4.3.3 Tables 3.2.2-1 3.10-1, and Figures 6.2.3-2, 9.4.3-3, 9.4.5-2, 9.4.7-2 and 9.4.8-2 will be revised as described in the response and indicated on the enclosed markup.

U.S. EPR FSAR Tier 2, Section 9.4.3.1 was revised in Revision 3 as described in the response and indicated on the enclosed markup

Question 09.04.03-6:

The Tier 2 FSAR section 9.4.14 and Figure 9.4.14-2 describes the Access Building Ventilation System as servicing an Access Building that is divided into a radiological controlled area, which presumably has the potential to become contaminated. Both the controlled area of this building and a supervisory area are serviced by the ABVS. The ABVS as shown in the FSAR has two different exhaust subsystems. The subsystem that services the controlled areas exhausts through HEPA filters and is monitored for radioactivity. The exhaust subsystem that services the supervisory area releases directly to the environment with no devices to filter radioactivity or monitor for radioactivity. Based on the review of this system the staff requests the following information:

1. Provide justification for not subjecting the Supervisory area of the Access Building to GDC 60. i.e., provide the location in the FSAR for the description of the controls that separate the contaminated areas from clean areas in the Access Building.
    a. The description should include a general discussion of the controls that prevent the migration of contamination from contaminated areas to clean areas of the Access Building. Also identify the monitoring devices that are used in the supervisory areas to ensure the potential for an unmonitored release of radioactivity does not occur.
    b. The description should specifically address the ABVS functions in the event of an indication, via plant stack radiation monitor or other means, of radioactive contamination downstream of the ABVS HEPA filtration units.
2. Alternatively, since the Access Building is a EPR Standard Design Interface item, Include a COL information item that requires a COL applicant that references the U.S. EPR standard design to provide details on the site specific access building and ABVS design that:
    a. Prevent the migration of gaseous or particulate radioactive contamination from controlled areas of the building to clean areas of the building.
    b. Describe the monitoring devices that are needed in the supervisory area to ensure that radioactivity in the access building would not leave the building through the ABVS supervisory area exhaust subsystem.
    c. Describe the SSCs that are required to clean up the Access Building atmosphere in the event of indication, via plant stack radiation monitor or other means, of radioactive contamination downstream of the ABVS HEPA filtration units.

Response to Question 09.04.03-6:

1. U.S. EPR FSAR Tier 2, Sections 9.4.14.1 and 9.4.14.4, state that the access building ventilation system (ABVS) is subject to the requirements of GDC 60.
    a. The controlled areas of the Access Building are maintained at a negative pressure, while the supervised areas adjacent to the controlled areas, are maintained at ambient pressure. Clean air from the supervised areas will flow to potentially contaminated controlled areas and will then be filtered by a HEPA filtration unit and be exhausted to the plant vent stack. The system design configuration maintains air flow from clean areas to potentially contaminated

controlled areas, thus preventing the migration of contamination from contaminated areas to clean areas of the Access Building.

U.S. EPR FSAR Tier 2, Sections 9.4.14.1, 9.4.14.2.1, 9.4.14.3.1 and 9.4.14.4 will be revised to include this clarifying information.

U.S. EPR FSAR Tier 2, Figure 9.4.14-2, “Access Building Ventilation System - Supply and Exhaust Air Subsystem,” will be revised to include this clarifying information.

b. An alarm is annunciated in the main control room (MCR) if radiation is detected by radiation monitors downstream of the HEPA exhaust filtration units. To prevent the release of potential airborne contaminants, operators can secure the ABVS supply and exhaust fans, and close the supply and exhaust isolation dampers from the MCR.

U.S. EPR FSAR Tier 2, Section 9.4.14.3.1, will be revised to include this clarifying information.

2. See the Response to Question 09.04.03-6, Part 1.

FSAR Impact:

U.S. EPR FSAR Tier 2, Sections 9.4.14.1, 9.4.14.2.1, 9.4.14.3.1 and 9.4.14.4, and Figure 9.4.14-2, will be revised as described in the response and indicated on the enclosed markup.

U.S. EPR Final Safety Analysis Report Markups

2.6.5 Nuclear Auxiliary Building Ventilation System (NABVS)

~~There are no Tier 1 entries for this system.~~

1.0 Description

The nuclear auxiliary building ventilation system (NABVS) provides conditioned air to the Nuclear Auxiliary Building (NAB), Fuel Building (FB), Containment Building, and the annulus area between the Containment Building and the Shield Building.

The exhaust air from the NAB, FB, Safeguard Building (SB), Containment Building, and the annulus is processed through the NABVS filtration trains prior to release to the environment via the vent stack.

The NABVS is classified as a non-safety related and non-seismic system, except the backdraft damper located at the discharge into the vent stack.

The NABVS performs the following safety-related function:

- A safety-related Seismic Category I backdraft damper is located at the NABVS exhaust duct into the vent stack. This backdraft damper isolates the NABVS as required from other safety systems exhausting to the vent stack during accident operation.
- During accident conditions, the NABVS is shut down while the safety related systems SBVS and AVS operate. The backdraft damper shuts by a differential pressure between the vent stack and NABVS duct.

The remaining portions of the NABVS perform no safety-related function and the system is not required to operate during a design basis accident.

2.0 Arrangement

2.1 The functional arrangement of the NABVS exhaust backdraft damper at the vent stack is as shown on Figure 2.6.5-1—Nuclear Auxiliary Building Exhaust Filtration Trains Subsystem Functional Arrangement.

2.2 The location of NABVS exhaust backdraft damper is as listed in Table 2.6.5-1—Nuclear Auxiliary Building Ventilation System Equipment Mechanical Design.

3.0 Mechanical Design Features

3.1 Equipment listed in Table 2.6.5-1 can perform the function listed in Table 2.6.5-1 under system operating conditions.

3.2 Components identified as Seismic Category I in Table 2.6.5-1 can withstand seismic design basis loads without a loss of the function listed in Table 2.6.5-1.

3.3 Components listed in Table 2.6.5-1 as ASME AG-1 Code are designed in accordance with ASME AG-1 Code requirements.

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3.4 Components listed in Table 2.6.5-1 as ASME AG-1 Code are fabricated in accordance with ASME AG-1 Code requirements, including welding requirements.

3.5 Components listed in Table 2.6.5-1 as ASME AG-1 Code are inspected and tested in accordance with ASME AG-1 Code requirements.

4.0 Displays and Controls

N/A

5.0 Electric Power Design Features

N/A

6.0 Environmental Qualifications

N/A

7.0 Equipment and System Performance

7.1 During accident conditions, the NABVS is shut down, and the backdraft damper prevents the SBVS and AVS exhaust air flow from discharging into the NABVS.

8.0 Inspections, Tests, Analyses and Acceptance Criteria

Table 2.6.5-2 lists the NABVS ITAAC.

09.04.03-4

Table 2.6.5-1 – Nuclear Auxiliary Building Ventilation System Equipment Mechanical Design

Description	Tag Number	Location	ASME AG-1 Code	Function	Seismic Category
Backdraft Damper	30KLE50AA001	UFA	Yes	Close	I

09.04.03-4

Table 2.6.5-2—Nuclear Auxiliary Building Ventilation System ITAAC (2 Sheets)

Commitment Wording		Inspection, Tests, Analyses	Acceptance Criteria
2.1	The functional arrangement of the NABVS exhaust backdraft damper at the vent stack is as shown on Figure 2.6.5-1	An inspection of the as-built system will be performed.	The as-built NABVS exhaust backdraft damper conforms to the functional arrangement as shown on Figure 2.6.5-1.
2.2	The location of the NABVS exhaust backdraft damper is as listed in Table 2.6.5-1.	An inspection will be performed.	The NABVS exhaust backdraft damper listed in Table 2.6.5-1 is located as listed in Table 2.6.5-1.
3.1	Equipment listed in Table 2.6.5-1 can perform the function listed in Table 2.6.5-1 under system operating conditions.	Tests will be performed.	Equipment listed in Table 2.6.5-1 performs the function listed in the table under accident operating conditions.
3.2	Components identified as Seismic Category I in Table 2.6.5-1 can withstand seismic design basis loads without a loss of the function listed in Table 2.6.5-1.	a. Type tests, analyses, or a combination of type tests and analyses will be performed on the components identified as Seismic Category I in Table 2.6.5-1 using analytical assumptions, or under conditions, which bound the Seismic Category I design requirements. b. Inspections will be performed of the components identified as Seismic Category I in Table 2.6.5-1 to verify that the components, including anchorage are installed per seismic qualification reports (SQDP, EQDP, or analyses) requirements.	a. Seismic qualification reports (SQDP, EQDP, or analyses) conclude that the components identified as Seismic Category I in Table 2.6.5-1 can withstand seismic design basis loads without a loss of the function listed in Table 2.6.5-1 including the time required to perform the listed function. b. Inspection reports conclude that the components identified as Seismic Category I in Table 2.6.5-1, including anchorage, are installed per seismic qualification reports (SQDP, EQDP, or analyses) requirements.
3.3	Components listed in Table 2.6.5-1 as ASME AG-1 Code are designed in accordance with ASME AG-1 Code requirements.	An analysis will be performed of ASME AG-1 Code Design Verification Reports.	ASME AG-1 Code Design Verification Reports (AA-4400) conclude that the design of components listed as ASME AG-1 Code in Table 2.6.5-1 complies with ASME

09.04.03-4

Table 2.6.5-2—Nuclear Auxiliary Building Ventilation System ITAAC (2 Sheets)

Commitment Wording		Inspection, Tests, Analyses	Acceptance Criteria
			AG-1 Code requirements.
3.4	Components listed in Table 2.6.5-1 as ASME AG-1 Code are fabricated in accordance with ASME AG-1 Code requirements, including welding requirements.	Inspections will be performed.	For components listed as ASME AG-1 Code in Table 2.6.5-1, reports conclude that the component is fabricated in accordance with ASME AG-1 Code requirements, including welding requirements.
3.5	Components listed in Table 2.6.5-1 as ASME AG-1 Code are installed, inspected and tested in accordance with ASME AG-1 Code requirements.	Inspections and tests will be performed.	For components listed as ASME AG-1 Code in Table 2.6.5-1, reports conclude that the component meets ASME AG-1 Code inspection and testing requirements
7.1	During accident conditions, the NABVS is shut down, and the backdraft damper prevents the SBVS and AVS exhaust air flow from discharging into the NABVS.	A test will be performed to verify, upon receipt of a containment isolation test signal, that the NABVS is shut down and the backdraft damper prevents the SBVS and AVS exhaust air flow discharging into NABVS.	A test confirms, upon receipt of a containment isolation test signal, that the NABVS is shut down and the backdraft damper prevents the SBVS and AVS exhaust air flow from discharging into the NABVS.

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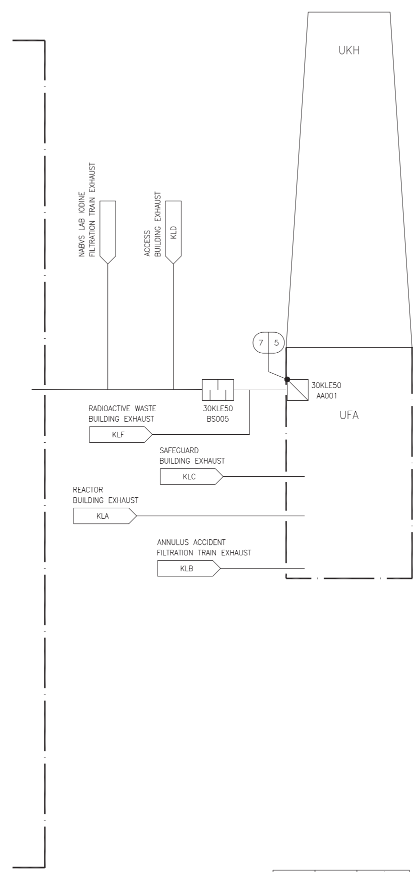
Figure 2.6.5-1—Nuclear Auxiliary Building Exhaust Filtration Trains Subsystem Functional Arrangement



7	AG-1	N/A
5	AG-1	I
DESIGN AREA	ASME	SSC SEISMIC CLASS

Next File

6.0 Equipment and System Performance

6.1 The SBVSE provides conditioned and recirculated air to maintain design temperature in the Safeguard Buildings, while operating in a design basis accident alignment..

6.2 The recirculation cooling units start and stop automatically in the emergency feedwater system (EFWS) and the component cooling water system (CCWS) pump rooms when the room temperature reaches preset maximum and minimum temperatures in the pump rooms.

6.3 The SBVSE maintains the hydrogen concentration levels in the battery rooms below one percent by volume.

09.04.01-3

7.0 Inspections, Tests, Analyses and Acceptance Criteria (ITAAC)

Table 2.6.7-3 lists the SBVSE ITAAC.

Table 2.6.7-3—Electrical Division of Safeguard Building Ventilation System ITAAC (5 Sheets)

	Commitment Wording	Inspections, Tests, Analyses	Acceptance Criteria
6.3	The SBVSE maintains the hydrogen concentration levels in the battery rooms below one percent by volume.	Tests and analysis ~~of the system~~ will be performed. ~~to demonstrate the air flow capability of the SBVSE is adequate to maintain the hydrogen concentration levels in the battery rooms below one percent.~~	The air flow capability of the SBVSE ~~is adequate to~~ maintains the hydrogen concentration levels in the battery rooms below one percent by volume.

09.04.01-3

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Table 1.9-2—U.S. EPR Conformance with Regulatory Guides
Sheet 10 of 19

RG / Rev	Description	U.S. EPR Assessment	FSAR Section(s)
1.122, R1	Development of Floor Design Response Spectra for Seismic Design of Floor-Supported Equipment or Components	Y	3.7.2 3.7.3.1
1.124, R2	Service Limits and Loading Combinations for Class 1 Linear-Type Supports	Y	3.9.3 9.1
1.125, R1	Physical Models for Design and Operation of Hydraulic Structures and Systems for Nuclear Power Plants	N/A-COL	N/A
1.126, R1	An Acceptable Model and Related Statistical Methods for the Analysis of Fuel Densification	Y (Per AREVA Topical Report ANP-10231P)	4.2
1.127, R1	Inspection of Water-Control Structures Associated with Nuclear Power Plants	N/A-COL	N/A
1.128, R2	Installation Design and Installation of Vented Lead-Acid Storage Batteries for Nuclear Power Plants	Y 09.04.01-3	Table 8.1-1 8.3.2.2.3 9.4.6.1
1.129, R2	Maintenance, Testing, and Replacement of Vented Lead-Acid Storage Batteries for Nuclear Power Plants	Y	Table 8.1-1 8.3.2.2.3
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
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

Table 3.2.2-1—Classification Summary
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KKS System or Component Code	SSC Description	Safety Classification (Note 15)	Quality Group Classification	Seismic Category (Note 16)	10 CFR 50 Appendix B Program (Note 5)	Location (Note 17)	Comments/ Commercial Code
30KLD01/02 AC003	Supply Air Heaters	NS	E	NSC	No	UKE	ANSI/ASME B31.1[6]
30KLD01/02 AT004	Supply Air Pre-Filters	NS	N/A	NSC	No	UKE	
30KLD01/02 AC001	Supply Air Pre-Heaters	NS	E	NSC	No	UKE	ANSI/ASME B31.1[6]
KLD	Supply/Supervised Area Exhaust Dampers	NS	N/A	NCS	No	UKE	
KLE 30KLE590AA001	Backdraft Damper to Vent Stack	S	N/A	I	Yes	UFA	ASME AG-1[14]
KLE (All other components)	**Nuclear Auxiliary Building Ventilation System**	NS	N/A	NSC	No	UKA	ASME AG-1[14]
SAG	**Smoke Confinement System**	NS	N/A	NSC	No	UJK, UJH	NFPA 92A[19]
[[SAM1, SAM2, SAC70	**Turbine Island Ventilation System**	NS	N/A	NSC	No	UMA, UBA	Local Building Codes]]
SAL	**Station Blackout Room Ventilation System**	NS-AQ	N/A	NSC	No	UBA	Local Building Codes

Table 3.10-1—List of Seismically and Dynamically Qualified Mechanical and Electrical Equipment Sheet 166 of 198

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)
Sep Recirc Unit, JMU Rm, SG1	30KLC51AT003	31UJH10010	M	H	SI	S C/NM	Y (3) Y (5)
Chiller Recirc Unit, KLC SG2	30KLC52AC001	32UJH05002	M	H	SI	S C/NM	Y (3) Y (5)
Chiller Recirc Unit, Vlv Rm, KLC SG2	30KLC52AC002	32UJH10002	M	H	SI	S C/NM	Y (3) Y (5)
Fan Recirc Unit, KLC SG2	30KLC52AN001	32UJH05002	M	H	SI	S C/NM	Y (3) Y (5)
Fan Recirc Unit, Vlv Rm, KLC SG2	30KLC52AN002	32UJH10002	M	H	SI	S C/NM	Y (3) Y (5)
Sep Recirc Unit, Vlv Rm, KLC SG2	30KLC52AT001	32UJH05002	M	H	SI	S C/NM	Y (3) Y (5)
Sep Recirc Unit, Vlv Rm, KLC SG2	30KLC52AT002	32UJH10002	M	H	SI	S C/NM	Y (3) Y (5)
Chiller Recirc Unit, KLC SG3	30KLC53AC001	33UJH05002	M	H	SI	S C/NM	Y (3) Y (5)
Chiller Recirc Unit, Vlv Rm, KLC SG3	30KLC53AC002	33UJH10002	M	H	SI	S C/NM	Y (3) Y (5)
Fan Recirc Unit, KLC SG3	30KLC53AN001	33UJH05002	M	H	SI	S C/NM	Y (3) Y (5)
Fan Recirc Unit, Vlv Rm, KLC SG3	30KLC53AN002	33UJH10002	M	H	SI	S C/NM	Y (3) Y (5)
Sep Recirc Unit, Vlv Rm, KLC SG3	30KLC53AT001	33UJH05002	M	H	SI	S C/NM	Y (3) Y (5)
Sep Recirc Unit, Vlv Rm, KLC SG3	30KLC53AT002	33UJH10002	M	H	SI	S C/NM	Y (3) Y (5)
Chiller Recirc Unit, KLC SG4	30KLC54AC001	34UJH05004	M	H	SI	S C/NM	Y (3) Y (5)
Chiller Recirc Unit, KAA vlv rm, SG4	30KLC54AC002	34UJH10004	M	H	SI	S C/NM	Y (3) Y (5)
Chiller Recirc Unit, JMU Rm, SG4	30KLC54AC003	34UJH10010	M	H	SI	S C/NM	Y (3) Y (5)
Fan Recirc Unit, KLC SG4	30KLC54AN001	34UJH05004	M	H	SI	S C/NM	Y (3) Y (5)
Fan Recirc Unit, KAA Vlv Rm, SG4	30KLC54AN002	34UJH10004	M	H	SI	S C/NM	Y (3) Y (5)
Fan Recirc Unit, JMU Rm, SG4	30KLC54AN003	34UJH10010	M	H	SI	S C/NM	Y (3) Y (5)
Sep Recirc Unit, KLC SG4	30KLC54AT001	34UJH05004	M	H	SI	S C/NM	Y (3) Y (5)
Sep Recirc Unit, KAA Vlv Rm, SG4	30KLC54AT002	34UJH10004	M	H	SI	S C/NM	Y (3) Y (5)
Nuclear Auxiliary Building Ventilation System (NABVS)							
Exhaust Air Backdraft Damper	30KLE50AA001	30UFA34075	M	M	SI S	C/NM	Y (5)
Electrical Division of Safeguard Building Ventilation System (SBVSE)							
Outside Air Isolation Damper	30SAC01AA002	31UJK22026	M	M	SI	S C/NM	Y (5)
Outside Air Control Damper	30SAC01AA003	31UJK22026	M	M	SI	S C/NM	Y (5)
Recirc Air Control Damper	30SAC01AA004	31UJK22028	M	M	SI	S C/NM	Y (5)
Supply Air Backdraft Damper	30SAC01AA005	31UJK22026	M	M	SI	S C/NM	Y (5)
Supply Air Cooler	30SAC01AC001	31UJK22026	M	M	SI	S	Y (5)
Supply Air Heater	30SAC01AH002	31UJK22026	M	M	SI	S C/NM	Y (5)
~~Exhaust Air Backdraft Damper, KLE~~	~~30KLE59AA001~~	~~30UFA34075~~	~~M~~	~~M~~	~~SI S~~	~~C/NM~~	~~Y (5)~~
~~Humidifier Heater~~	~~30SAC01AH003~~	~~31UJK22026~~	~~M~~	~~M~~	~~SII~~	~~NS-AQ~~	~~Y (5)~~

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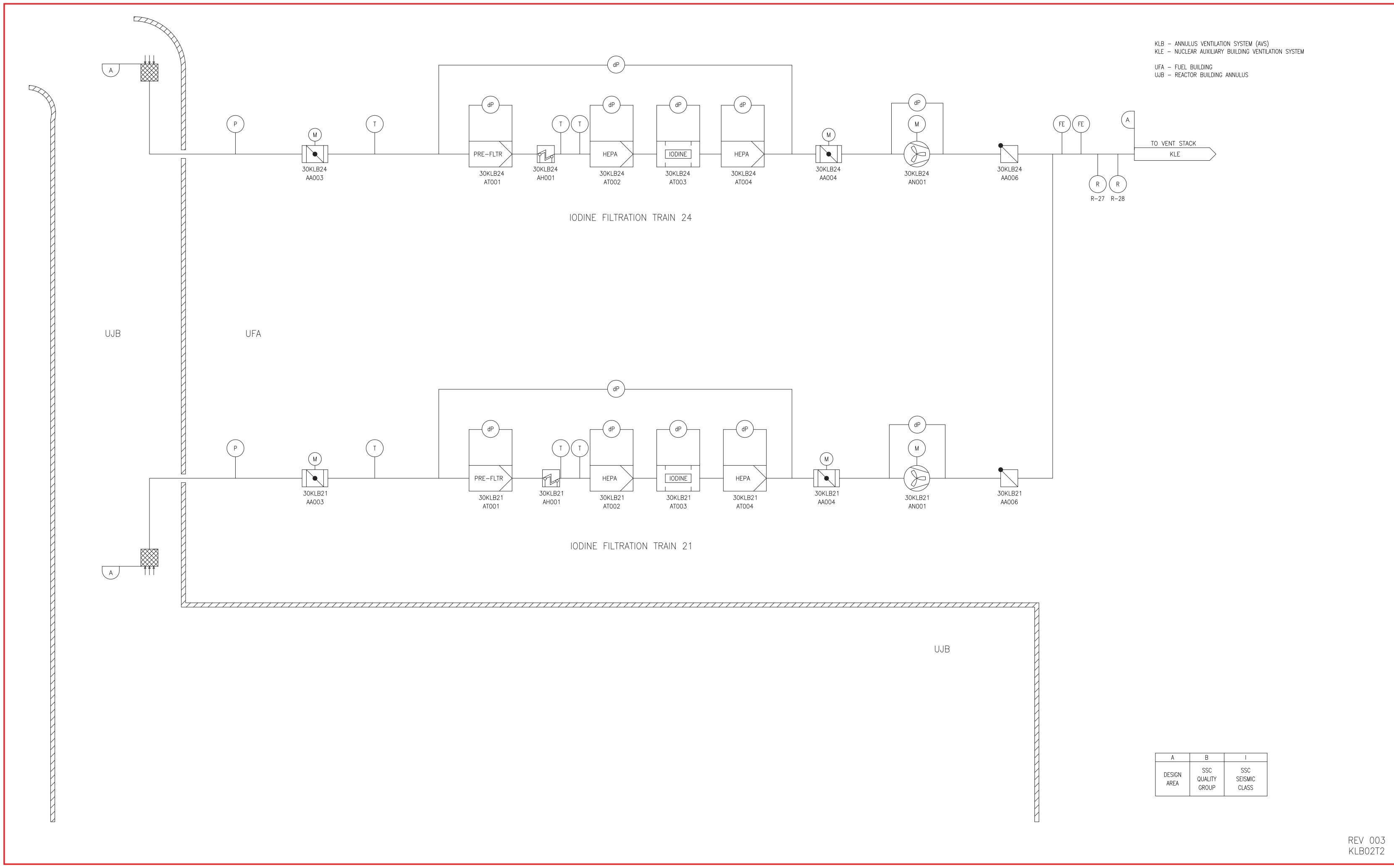
09.04.03-4

Figure 6.2.3-2—AVS Accident Trains

09.04.03-4



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9.4.14 Access Building Ventilation System

The access building ventilation system (ABVS) maintains room ambient conditions inside the Access Building to permit personnel access to the Nuclear Island (NI), and to control the concentration of airborne radioactive material in the controlled areas of the building during normal operation, including maintenance and refueling shutdowns, and during anticipated operational occurrences. The ABVS is composed of the following three subdivisions:

- The supply of fresh air to all areas of the Access Building and the prestressing gallery underneath the Reactor Building (RB).
- The controlled area exhaust with radiation classification.
- The supervised areas exhaust with no radiation classification.

9.4.14.1 Design Bases

The ABVS performs no safety-related functions and is not required to operate during a design basis accident (DBA).

The ABVS monitors the controlled area exhaust air for potential radioactivity upstream of the prefilter and high efficiency particulate air (HEPA) filters by the sampling activity monitoring system (SAMS) prior to discharge into the plant vent stack. This complies with the requirements of GDC-60.

09.04.03-6

The controlled areas in the Access Building are maintained at a negative pressure, while the adjacent supervised areas are maintained at ambient pressure. Clean air from the supervised areas will flow to potentially contaminated areas in the controlled area, is filtered by a HEPA filtration unit, and is then exhausted to the plant vent stack.

The ABVS environmental operating conditions are specified in Table 9.4.14-1—ABVS Environmental Conditions.

9.4.14.2 System Description

9.4.14.2.1 General Description

Two of the three ABVS subdivisions are located in the Access Building:

- The supervised areas (i.e., non-controlled areas with no radiation classification).
- The controlled areas (i.e., areas with radiation classification).

The ABVS also provides supply and exhaust air to the prestressing gallery, located in the RB at elevation -50 ft. The ventilation system is designed for fresh supply air and exhaust air operation; there is no air recirculation.

Refer to Section 12.3.6.5.6 for ventilation system design features which demonstrate compliance with the requirements of 10 CFR 20.1406.

Supply Air Subsystem

The ABVS supplies air to the Access Building and to the prestressing gallery underneath the RB. Figure 9.4.14-1—Access Building Ventilation System – Supply Air Subsystem, provides a simplified diagram of the supply air subsystem of the ABVS. Depending on the outdoor air conditions, the supply air can be cooled or heated, and humidified. The supply air is filtered with prefilters and roughing filters.

The supply air subsystem upstream of the fans is a two-train system arranged in a parallel configuration. Horizontal air ducts and vertical air shafts distribute the fresh air to both the supervised and controlled areas. The negative pressure in the controlled areas is maintained by a control damper in the controlled area supply air duct after the separation from the general supply air.

09.04.03-6

A pressure control damper is located in the supply ducting that provides ventilation air to the controlled areas in the Access Building. This damper modulates between open and close to adjust the supply of air flow, as required, to maintain a negative pressure in the controlled areas.

Controlled Area Exhaust Air Subsystem

09.04.03-6

The controlled area exhaust air subsystem of the ABVS is shown in Figure 9.4.14-2—Access Building Ventilation System – Supply and Exhaust Air Subsystem. The ABVS controlled area exhaust subsystem has the following functions:

- Maintains a negative pressure in the controlled areas of the Access Building, with respect to adjacent areas.
- Reduces airborne radioactivity by filtration of exhaust air from the controlled areas.
- Maintains airflow within the Access Building from the clean areas towards the controlled areas.

The exhaust air from the controlled areas of the Access Building is brought together through air ducts and vertical shafts. The combined exhaust air is routed through filter banks that consist of three trains of prefilters and HEPA filters, each designed for 50 percent of the volumetric air flow. The exhaust air filtering takes place continuously. After passing through the filters, the controlled area exhaust air is routed through a concrete duct outside the Access Building to the Nuclear Auxiliary Building (NAB) where two fans discharge the exhaust air to the vent stack. The controlled area exhaust is monitored for potential radioactivity upstream of the filters by the sampling activity monitoring system (SAMS).

09.04.03-6

The supervised areas adjacent to the controlled areas are maintained at ambient pressure, while the controlled areas are maintained at a negative pressure. The clean air from the supervised areas will flow towards the controlled areas, where it is filtered by a HEPA filter and then exhausted to the vent stack.

If contamination is detected by radiation monitors downstream of the HEPA exhaust filtration units, the control room receives an alarm. To prevent the release of potential airborne contaminants to the vent stack, the control room operators will shut down the ABVS supply fans, exhaust fans, inlet isolation dampers, and exhaust isolation dampers.

Supervised Area Exhaust Air Subsystem

The supervised area exhaust air subsystem of the ABVS is also shown in Figure 9.4.14-2. The ABVS supervised area exhaust subsystem exhausts the air of the Access Building cold rooms. The air is collected in ducts and vertical shafts. There are two exhaust fans, each sized for 100 percent of the volumetric flow. The supervised area exhaust air is discharged directly to the atmosphere.

The exhaust air unit of the prestressing gallery is considered part of the supervised area exhaust system. The prestressing gallery has its own exhaust fan that discharges directly to the atmosphere.

9.4.14.2.2 Component Description

The major components of the ABVS are described in the following paragraphs. Table 3.2.2-1 provides the seismic design and other design classifications for components in the ABVS.

Fans

The supply air fans, the controlled area exhaust fans, and the supervised area exhaust fans are centrifugal and are directly connected to the motor shaft. These fans are equipped with local heating units. The exhaust air fan of the prestressing gallery is axial. The fan operating characteristics (i.e., flow rate and pressure) provide required air delivery flow rates.

Dampers

The actuator-driven control damper is located in the supply air duct of the controlled area. The damper maintains a constant sub-pressure inside the controlled area of the Access Building by gradual reduction or increase of supply air flow. The actuator-driven control damper maintains a constant exhaust flow rate, compensating for the increased pressure loss through the exhaust air filters by gradually increasing the damper opening.

Fire Dampers

Fire dampers are installed where ductwork penetrates a fire barrier. Fire damper design meets the requirements of UL 555 (Reference 1) and the damper fire rating is commensurate with the fire rating of the barrier penetrated.

Ducts

The supply air ducts are folded galvanized steel ducts. The exhaust air ducts are similar with the exception that the ducts inside the filter rooms are of air-tight welded construction.

9.4.14.3 System Operation

9.4.14.3.1 Normal Operation

Supply Air Subsystem

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The ABVS supply air subsystem operates continuously. The ABVS supply air subsystem, as well as the controlled area and supervised area exhaust subsystems, are each operated from the main control room (MCR). The control functions work automatically and maintain the air flow constant. A pressure control damper is located in the supply ducting that provides ventilation air to the controlled areas in the Access Building. This damper controls the supply airflow, as required, to maintain a negative pressure in the controlled areas, while the ABVS exhaust fan provides continuous exhaust from this area. The system is designed for fresh supply air and exhaust air operation; there is no air recirculation.

During operation, only one of the two supply air fans is running; the second is in standby. The supply air subsystem conditions the air by filtration, heating or cooling, and humidification, as required. The subsystem also supplies air to the supervised area, controlled area, and the prestressing gallery.

Air filter loading is monitored by regular inspection of the local differential pressure instrumentation at the filters. The prefilters and roughing filters can be replaced with the plant in operation or shutdown. Before a supply air filter train is taken out of service the damper in the supervised area exhaust air subsystem is moved to a predefined maintenance position. The train that requires the filter replacement is isolated while the other train remains in operation.

Controlled Area Exhaust Air Subsystem

09.04.03-6

The controlled area exhaust air subsystem operates continuously. The subsystem is operated from the MCR, along with the supply air subsystem and the supervised area exhaust air subsystem. The control functions work automatically, and the air flow is maintained constant. During operation, only one of the two fans located in the NAB is running; the other is in standby. The exhaust air of the controlled area of the Access Building is filtered continuously through prefilters and HEPA filters and released to the atmosphere via the vent stack. Potential radioactivity in the controlled area exhaust air is monitored by the SAMS that takes samples upstream of the filter banks.

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The areas within the Access Building adjacent to the controlled areas are clean areas. During normal operation, these clean areas are maintained at ambient pressure, while the controlled areas are maintained at a negative pressure relative to the outside ambient pressure. The ABVS is designed with a pressure control damper located in the supply ducting. This damper modulates between open and close to adjust the supply of air flow, as required, to maintain a negative pressure in the controlled areas, while the ABVS exhaust fan continuously operates to exhaust air from the controlled areas. Since the controlled areas are maintained at a negative pressure relative to the adjacent clean areas, air from clean areas flows towards the controlled areas.

There are three filter trains. Transferring operation from one filter train to another can be performed for maintenance and is possible during operation without changing the exhaust air flow capacity. The air-tight dampers of the standby train can be opened and those of the train to be maintained can be closed manually.

Air filter loading is monitored by regular inspection of the local differential pressure instrumentation at the filters.

Supervised Area Exhaust Air Subsystem

The supervised area exhaust air subsystem operates continuously. The subsystem is operated from the MCR, along with the supply air subsystem and the controlled area exhaust air subsystem. The control functions work automatically, and the air flow is maintained constant.

During normal operation, only one of the two fans is running; the other is in standby. The exhaust air of the supervised area of the Access Building is released continuously via a concrete air shaft to the atmosphere.

The exhaust air fan of the prestressing gallery operates in conjunction with its manual supply air damper. The ventilation of the prestressing gallery operates continuously.

9.4.14.3.2 Shutdown

When the plant is shut down, the operation of the supply air subsystem and exhaust air subsystems is the same as described in Section 9.4.14.3.1.

9.4.14.3.3 Abnormal Operation

Fan Failures

In case of failure of one supply air fan, one supervised area exhaust air fan or one controlled area exhaust air failure, the unaffected standby fan switches on automatically. Since redundant fans are provided, failure of one fan does not result in the loss of the system function. A failure of the prestressing gallery exhaust air fan leads to the loss of the ventilation of the prestressing gallery.

Failure of an Intake Line

Two supply air intake lines are provided so that the failure of one component in one air intake line does not affect the other intake line. The loss of one air intake train due to a component failure or the securing of one air intake for maintenance does not create a significant heating or cooling concern in the Access Building. This situation allows one air intake line to provide approximately 70 percent of the design air flow rate during normal plant operation. Considering the low likelihood of this situation and the fact that the ABVS heating and cooling functions are not safety functions, two 50 percent intakes are provided.

Loss of Offsite Power (LOOP)

A LOOP results in a loss of power to the ABVS electrical components, such as fans, dampers, cooling units, and heaters. The ABVS system is not provided with emergency power.

9.4.14.4 Safety Evaluation

The operation of the ABVS is not required for the safe shutdown of the plant or for mitigating the consequences of a DBA. Therefore, the system has no safety-related function and requires no nuclear safety evaluation.

09.04.03-4

To meet the requirements of GDC-60, the ~~controlled area exhaust system of the~~ ABVS is designed, installed, and tested in accordance with RG 1.143, RG 1.140 and ASME N509 (Reference 2), ASME N510 (Reference 3), and ASME AG-1 (Reference 4).

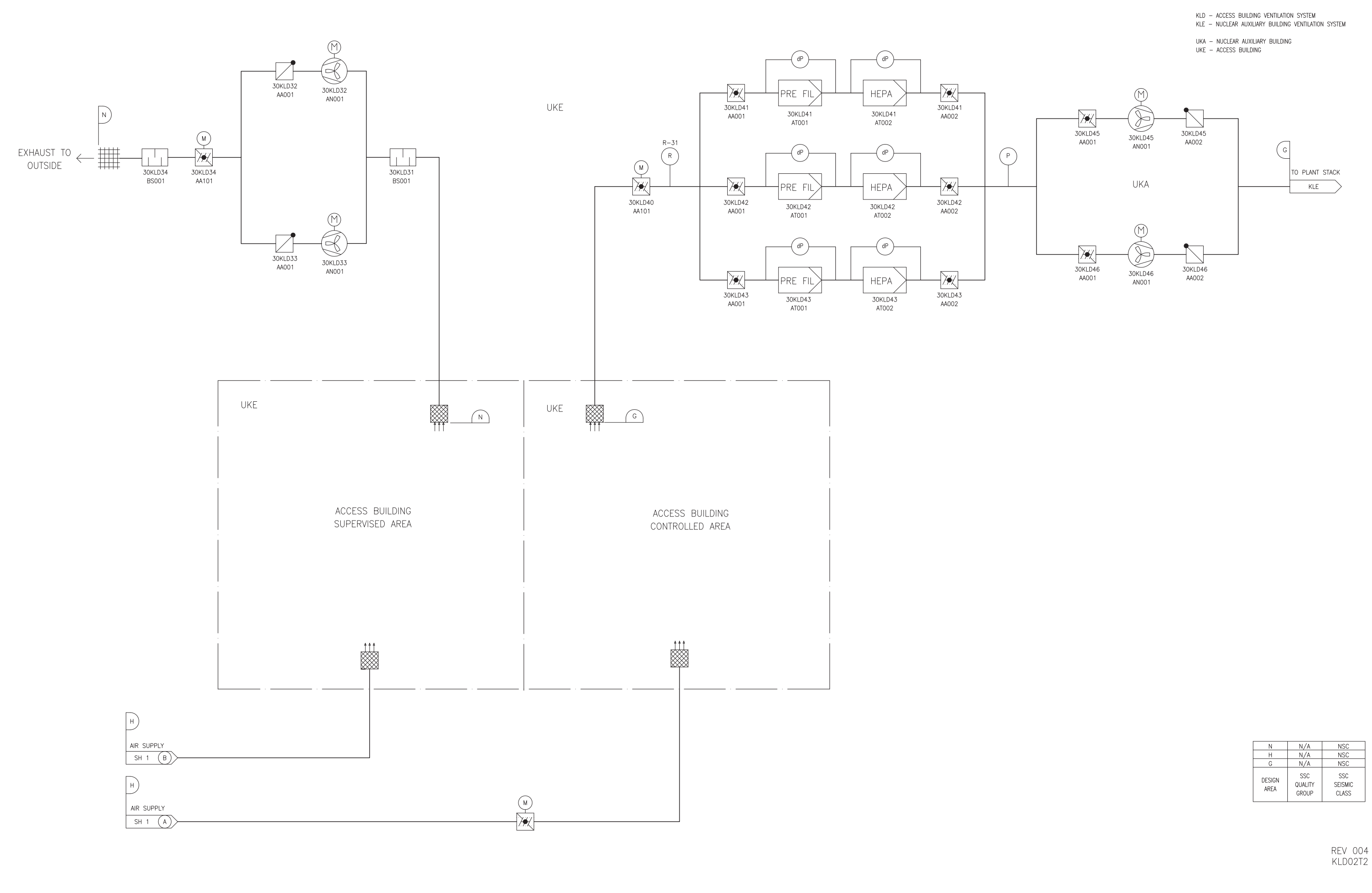
9.4.14.5 Testing and Inspection Requirements

The ABVS major components, such as dampers, motors, fans, filters, coils, heaters, and ducts are located to provide access for initial and periodic testing to verify their integrity.

Initial in-place acceptance testing of the ABVS is performed as described in Section 14.2 (test abstracts #224), Initial Plant Test Program, to verify the system is built in accordance with applicable programs and specifications.

Figure 9.4.14-2—Access Building Ventilation System – Supply and Exhaust Air Subsystem

09.04.03-6



N	N/A	NSC
H	N/A	NSC
G	N/A	NSC
DESIGN AREA	SSC QUALITY GROUP	SSC SEISMIC CLASS

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9.4.3 Nuclear Auxiliary Building Ventilation System

The nuclear auxiliary building ventilation system (NABVS) provides conditioned air to the Nuclear Auxiliary Building (NAB) to maintain acceptable ambient conditions, to permit personnel access, and to control the concentration of airborne radioactive material during normal operations and anticipated occupational occurrences. The system also provides conditioned air to the Fuel Building (FB), Containment Building, and the annulus area between the Containment Building and the Shield Building.

The exhaust air from the NAB, FB, Safeguard Building (SB), Containment Building, and the annulus is processed through the NABVS filtration trains prior to release to the environment via the vent stack.

9.4.3.1 Design Basis

09.04.03-4

The NABVS provides a safety-related function to provide isolation between the vent stack and the NABVS exhaust. A safety-related Seismic Category I ~~check~~backdraft damper is located in the NABVS exhaust at the vent stack.

All remaining components of the NABVS are non-safety related and Non-Seismic, as specified in Section 3.2.

- The NABVS meets GDC-2 for all components as it relates to meeting the seismic design criteria based on the guidance of RG 1.29 Position C.2 (GDC-2).
- The NABVS has no shared systems or components with other nuclear power units (GDC-5).
- The NABVS meets GDC-60, as it relates to the ability of the system to limit release of gaseous radioactive effluents to the environment. The NABVS exhaust iodine filtration trains meet the guidance of RG 1.140 Positions C.2 and C.3. RG 1.52 is not applicable because the NABVS is not required to operate during post-accident engineered safety features (ESF) atmospheric cleanup. The air flow rate of a single cleanup filtration unit will not exceed 30,000 cfm.

The NABVS performs the following safety-related function:

- A safety-related ~~check~~backdraft damper is located in the NABVS exhaust at the vent stack. This ~~check~~backdraft damper isolates the NABVS as required from the other safety systems exhausting to the vent stack during accident operation.
- During accident conditions, the NABVS is shut down and the safety-related annulus ventilation system (AVS) and safeguard building (controlled area) ventilation system (ABVS) operate. Closure of the backdraft damper is initiated by a differential pressure between the plant vent stack and the NABVS duct.
- The remaining portions of the NABVS perform no safety-related functions and the system is not required to operate during a design basis accident.

Iodine Activity Detection

In the event iodine is detected in the NAB, FB, or SB, the affected exhaust flow paths are redirected through the iodine filtration train prior to discharge through the vent stack. Iodine activity is detected separately in each cell.

Fuel Handling Accident in the Fuel Building

In the event of a fuel handling accident in the FB, the FB exhaust and supply are isolated by closing the appropriate dampers (refer to Section 9.4.2). To prevent spread of airborne contamination, the iodine filtration trains of the SB ventilation system process the exhaust air to maintain the required pressure in the FB pool hall (refer to Section 9.4.5). The remainder of the FB is ventilated by the NABVS. During and after the fuel handling accident, proper NABVS supply and exhaust flow rates are maintained by adjusting the control dampers.

Fuel Handling Accident in the Containment Building

In the event of a fuel handling accident in the Containment Building, the containment isolation valves close (refer to Section 9.4.7). Exhaust from the Containment Building is routed to the iodine filtration trains of the CBVS. Excess air supply from the NABVS is redirected by adjusting the supply air control dampers.

Operation of Safety Injection System during LOCA

In the event of a loss of coolant accident (LOCA), leakages in the safety injection system (SIS) can lead to iodine activity levels that are above the limits of the NABVS iodine filtration trains. In such a case, the SB exhaust is routed through the SB ventilation system (refer to Section 9.4.5). Excess air supply from NABVS is redirected by adjusting the supply air control damper. The NABVS supply and exhaust to the FB are isolated (refer to Section 9.4.2).

Loss of Offsite Power (LOOP)

Upon loss of offsite power, the isolation dampers fail to the closed position, preventing any pathway for potentially contaminated air to leak out to the environment.

Station Blackout (SBO)

In the event of SBO, there will be no power to any of the electrical components of the NABVS. Isolation dampers with spring return will fail to the closed position. Other isolation dampers will fail “as-is”.

9.4.3.3 Safety Evaluation

09.04.03-4

~~None of the components of the NABVS perform~~ The backdraft damper located in the NABVS exhaust at the vent stack is the only component in the NAVBVS that performs

09.04.03-4

a nuclear safety-related function. The None of the other NABVS components are not required to operate during a design basis accident (DBA). In case of a DBA, the NABVS is isolated from the HVAC systems of other buildings by isolation dampers. The backdraft damper prevents exhaust air flow from the AVS and SBVS from discharging into the NABVS.

The NABVS provides adequate capacity and redundant trains to maintain proper temperature levels in the NAB, FB, Containment Building, and annulus.

9.4.3.4 Inspection and Testing Requirements

The NABVS major components, such as dampers, motors, fans, filters, coils, heaters, and ducts are located to provide access for initial and periodic testing to verify their integrity.

Initial in-place acceptance testing of the NABVS is performed as described in Section 14.2 (test abstracts #079 and #203), Initial Plant Test Program, to verify the system is built in accordance with applicable programs and specifications.

The NABVS is designed with adequate instrumentation for differential pressure, temperature, and flow indicating devices to enable testing and verification of equipment function, heat transfer capability and air flow monitoring.

During normal plant operation, periodic testing of NABVS is performed to demonstrate system and component operability and integrity.

During normal operation, equipment rotation is utilized to reduce and equalize wear on redundant equipment during normal operation.

Isolation dampers are periodically inspected and damper seats replaced as required.

Fans and air handling units are tested by manufacturer in accordance with Air Movement and Control Association (AMCA) standards (References 4, 5, and 6). Air filters are tested in accordance with the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) standards (Reference 2). Cooling coils are hydrostatically tested and their performance is rated in accordance with the Air Conditioning and Refrigeration Institute (ARI) standards (Reference 8).

Housings and ductwork are leak-tested in accordance with the Sheet Metal and Air Conditioning Contractors' National Association (SMACNA) technical manual "HVAC Air Duct Leakage Test Manual" (Reference 9), American Society of Mechanical Engineers, ASME N510 (Reference 3), ASME AG-1 (Reference 1), and RG 1.140 (Reference 10).

Figure 9.4.3-3—Nuclear Auxiliary Building Exhaust Filtration Trains Subsystem

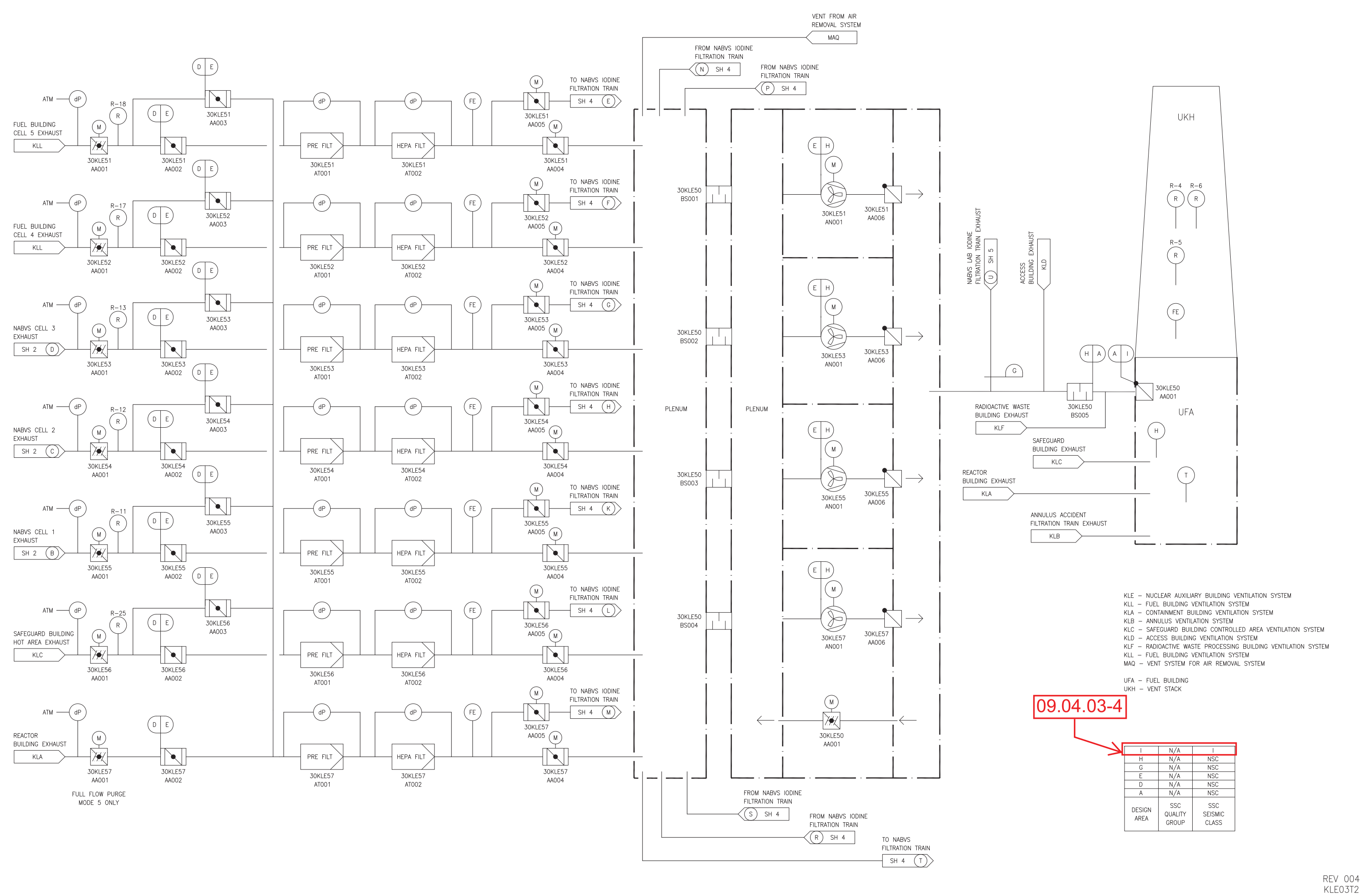
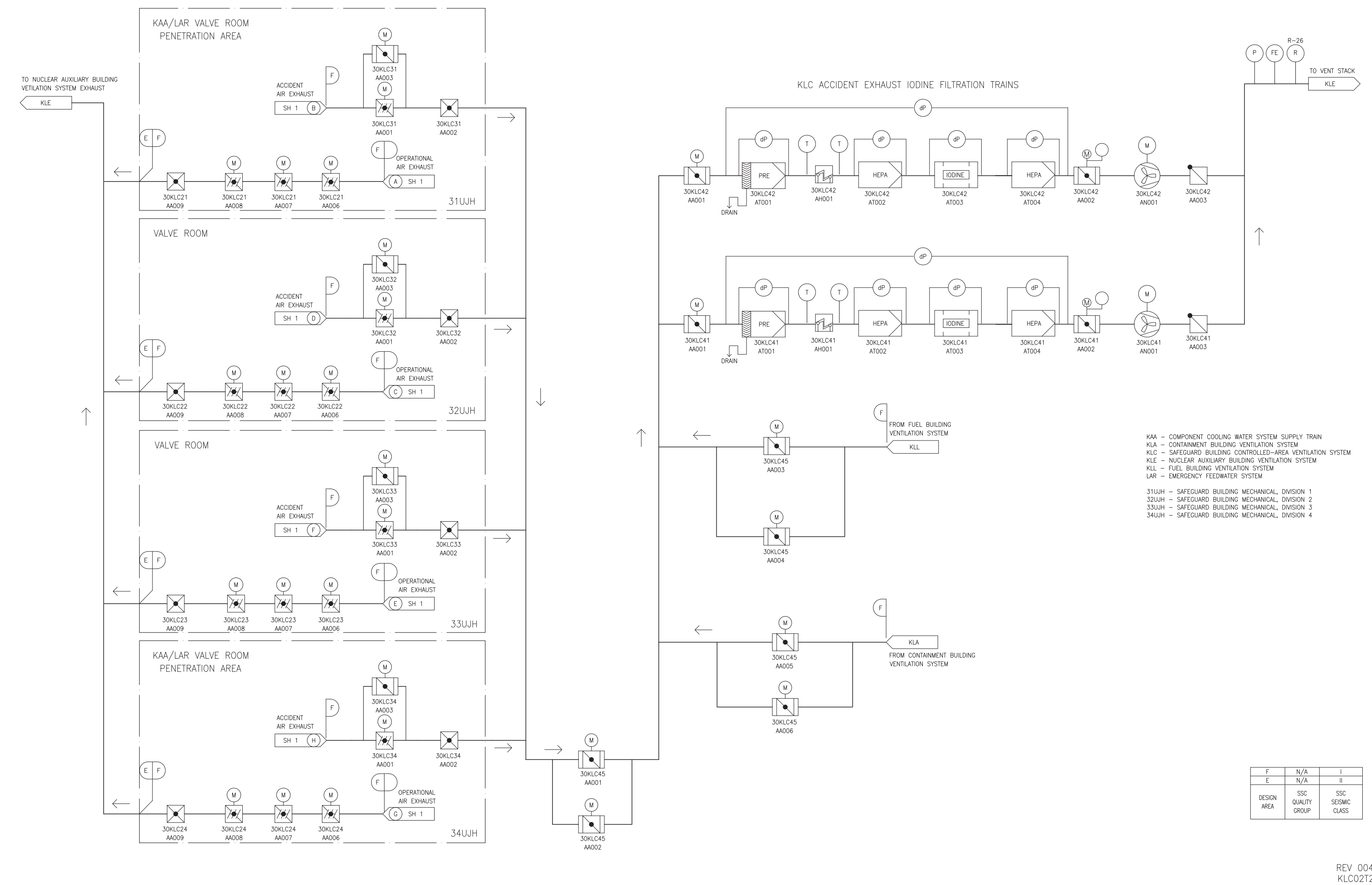


Figure 9.4.5-2—Safeguard Building Controlled-Area Ventilation System Exhaust Air Subsystem

09.04.03-4



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- 10CFR 50.63, as it relates to the SBSVE because during a station blackout (SBO), two of the four SBs are backed up by the SBO diesel generators alternate AC (AAC) power. An analysis to determine capability for withstanding or coping with a station blackout event as described by RG 1.155, position C.3.2.4, will be performed. The safety chilled water system (SCWS) chillers which provide cooling to the division 1 and 4 SBVSE air coolers and recirculation units are also powered by the SBO diesels and are available.

09.04.01-3

The SBVSE maintains acceptable ambient conditions in the SB during normal and SBO conditions. It ventilates the battery rooms in the SB during normal and SBO conditions to maintain the hydrogen concentration below the maximum allowable limits of RG 1.128 (Reference 11) and IEEE Std 484 (Reference 10). The SBVSE maintains hydrogen concentration levels in the battery rooms below one percent by volume. The SBVSE also ventilates the SCWS rooms during normal and SBO conditions to maintain the refrigerant concentration below the maximum allowable limits.

During normal plant operation, the SBVSE supplies air to the SB controlled areas. The flow of air is automatically adjusted by a damper in the supply air ducting that receives a pressure control signal, which maintains a negative pressure in the SB controlled areas, relative to the outside environment. The SBVS maintains the SB Electrical Division at ambient pressure. With a negative pressure maintained in the SB controlled areas and an ambient pressure maintained in the SB Electrical Division, a clean air environment is sustained within the SB Electrical Division.

Following the receipt of a containment isolation signal, supply air to the SBVSE is automatically closed to maintain isolation between the clean areas of the SB Electrical Division and the potentially contaminated SB controlled areas.

The SB Electrical Division is maintained as a clean air environment. In the event of an RCP thermal barrier failure or if radiation is detected within the component cooling water system (CCWS), the SBVSE can be shut down and isolated from the main control room. The affected areas can then be isolated to prevent the potential release of contaminants.

The SCWS chillers which provide cooling to the division 1 and 4 SBVSE air coolers and recirculation units are also powered by the SBO diesels and are available.

Air conditioning and heating loads for the SBVSE rooms are calculated using methodology identified in ASHRAE Handbook (Reference 3).

- Summer air conditioning loads will be calculated with a maximum outside air design temperature 0 percent exceedance value, using U.S. EPR Site Design Envelope Temperature (See Table 2.1-1). The analysis will be completed for both a normal and accident plant alignment configuration.

5. ANSI/AMCA-211-1987, "Certified Ratings Program-Air Performance," American National Standards Institute/Air Movement and Control Association International, December 1987.

6. ANSI/AMCA-300-1985, "Reverberant Room Method of Testing Fans for Rating Purposes," American National Standards Institute/Air Movement and Control Association International, December 1987.

7. ANSI/ASHRAE Standard 52.2-1999, "Method of Testing General Ventilation Air-Cleaning Devices for Removal Efficiency by Particle Size," American National Standards Institute/American Society of Heating, Refrigerating and Air Conditioning, 1999.

8. ANSI/ ARI Standard 410-2001, "Forced-Circulation Air-Cooling and Air-Heating Coils," Air Conditioning and Refrigeration Institute, 2001.

9. "HVAC Air Duct Leakage Test Manual," Sheet Metal and Air Conditioning Contractors' National Association, 1985.

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10. IEEE Std 484-2002, “IEEE Recommended Practice for Installation Design and Installation of Vented Lead-Acid Batteries for Stationary Applications,” Institute of Electrical and Electronics Engineers, 2002.

11. Regulatory Guide 1.128, Rev. 2, “Installation Design and Installation of Vented Lead Acid Storage Batteries for Nuclear Power Plants.” U.S. Nuclear Regulatory Commission.

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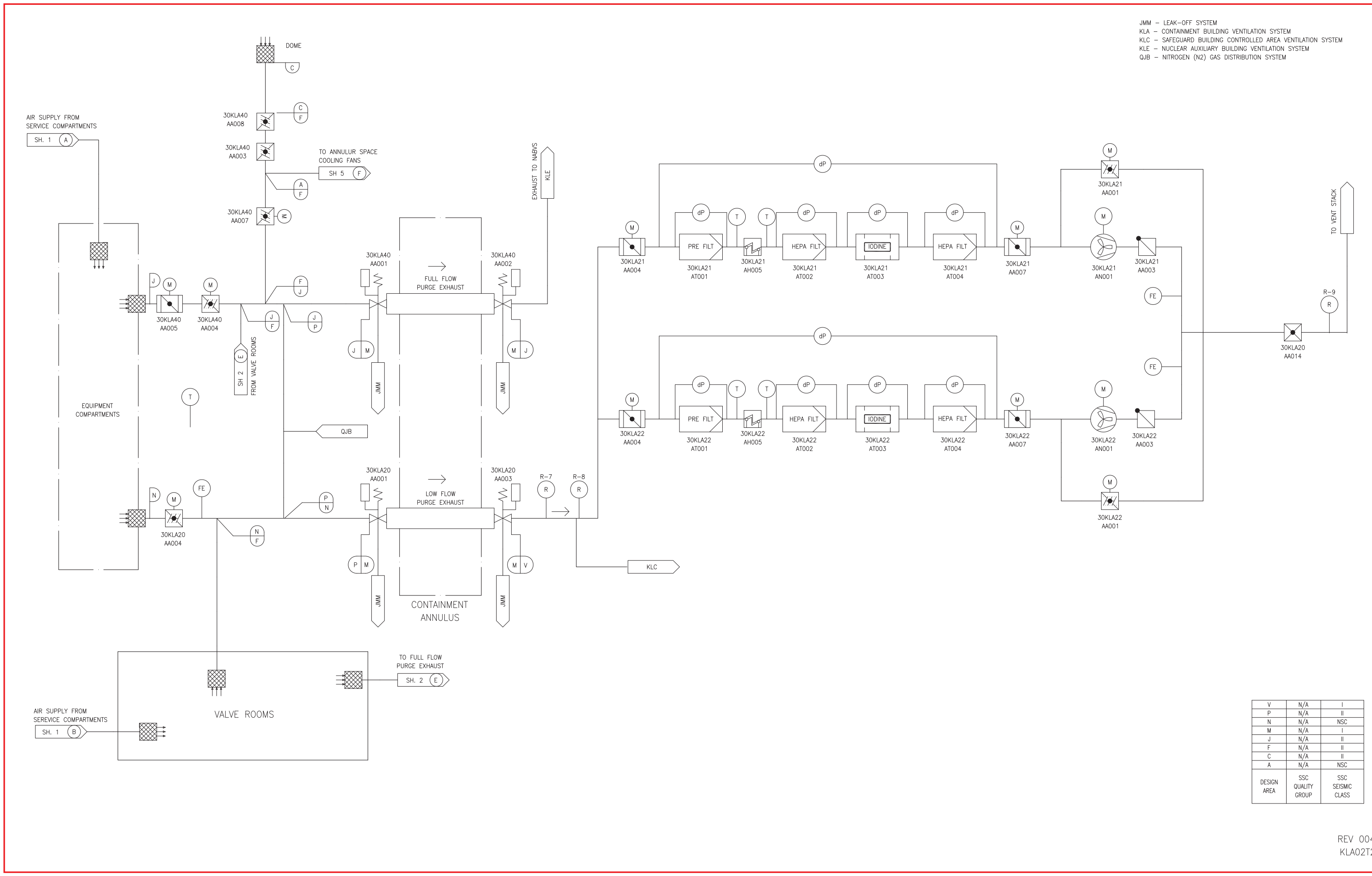
Figure 9.4.7-2—Containment Building Low Flow and Full Flow Purge Exhaust Subsystem

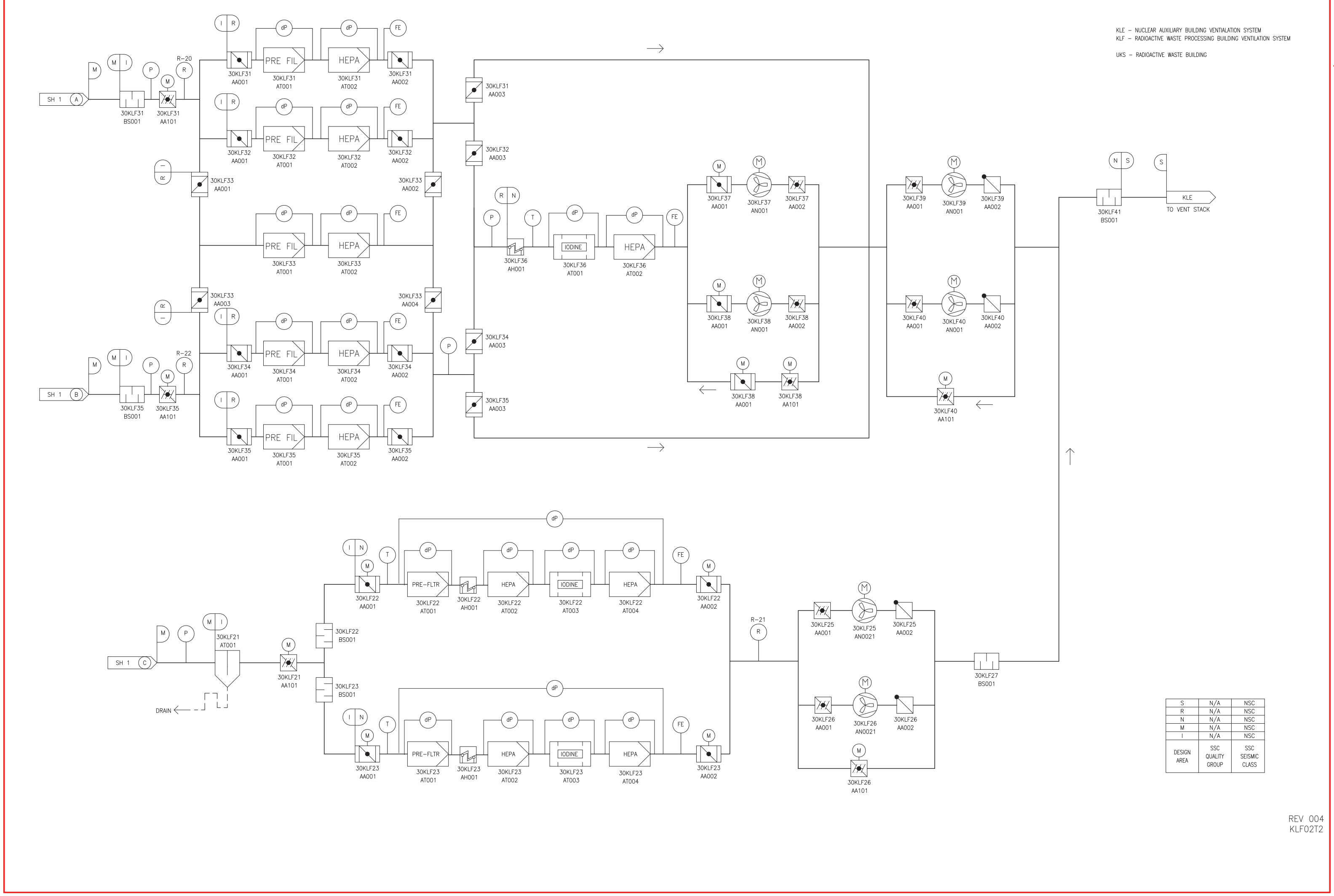
09.04.03-4



DESIGN AREA	SSC QUALITY GROUP	SSC SEISMIC CLASS
V	N/A	I
P	N/A	II
N	N/A	NSC
M	N/A	I
J	N/A	II
F	N/A	II
C	N/A	II
A	N/A	NSC

Figure 9.4.8-2—Radioactive Waste Building Ventilation System Exhaust Air Station

09.04.03-4



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SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.12.1	Verify Safeguard Building controlled areas and Fuel Building pressure is ≤ -0.25 inches water gauge.	12 hours
SR 3.7.12.2	Verify each Safeguard Building controlled areas and Fuel Building access door is closed, except when the access opening is being used for entry and exit.	31 days
SR 3.7.12.3	Operate each SBVS accident exhaust filtration train for ≥ 15 minutes with the heaters energized.	31 days
SR 3.7.12.4	Perform required SBVS filter testing in accordance with the Ventilation Filter Testing Program (VFTP).	In accordance with the VFTP
SR 3.7.12.5	Verify each SBVS accident exhaust filtration train actuates on an actual or simulated actuation signal.	24 months
SR 3.7.12.6	Verify Safeguard Building controlled areas and Fuel Building pressure can be drawn down to ≤ -0.25 inches water gauge in ≤ 305 seconds after an actual or simulated actuation signal using one SBVS accident exhaust filtration train.	24 months on a STAGGERED TEST BASIS for each SBVS accident exhaust filtration train
SR 3.7.12.7	Verify Safeguard Building controlled areas and Fuel Building pressure can be maintained at ≤ -0.25 inches water gauge using one SBVS accident exhaust filtration train at a flow rate of ≤ 2640 cfm.	24 months on a STAGGERED TEST BASIS for each SBVS accident exhaust filtration train
SR 3.7.12.8	Verify each SBVS recirculation cooler has the capability to remove the design heat load.	24 months

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BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.7.12.6 and 3.7.12.7

The SBVS exhausts the safeguard building controlled areas and fuel building atmosphere to the environment through appropriate treatment equipment. Each safety SBVS train is designed to draw down the safeguard building controlled areas and fuel building to a pressure of ≤ -0.25 inches of water gauge (wg) in ≤ 305 seconds and maintain the safeguard building controlled areas and fuel building at a pressure of ≤ -0.25 inches wg at a flow rate ≤ 2,640 cfm from the safeguard building controlled areas and fuel building. To ensure that all fission products released to the safeguard building controlled areas and fuel building are treated, SR 3.7.12.6 and SR 3.7.12.7 verify that a pressure in the safeguard building controlled areas and fuel building that is less than the lowest postulated pressure external to the safeguard building controlled areas and fuel building boundaries can be established and maintained. When the SBVS is operating as designed, the establishment and maintenance of safeguard building controlled areas and fuel building pressure cannot be accomplished if the safeguard building controlled areas or fuel building boundaries is not intact. Establishment of this pressure is confirmed by SR 3.7.12.6. SR 3.7.12.7 demonstrates that the safeguard building controlled areas and fuel building can be maintained at a pressure of ≤ -0.25 inches wg. The primary purpose of these SRs is to ensure safeguard building controlled areas and fuel building boundary integrity. The secondary purpose of these SRs is to ensure that the SBVS train being tested functions as designed. These SRs need not be performed with each safety SBVS train. The SBVS train used for these Surveillances is staggered to ensure that in addition to the requirements of LCO 3.7.12, either safety SBVS train will perform this test. The inoperability of the SBVS does not necessarily constitute a failure of these Surveillances relative to the safeguard building controlled areas and fuel building OPERABILITY. Operating experience has shown the safeguard building controlled areas and fuel building boundaries usually pass these Surveillances when performed at the 24 month Frequency. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.

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SR 3.7.12.8

This SR verifies that the SBVS recirculation coolers that cool the hot mechanical areas are capable of removing the design heat load assumed in the safeguards building heat load calculation. This SR consists of a combination of testing and calculations. The 24-month Frequency is appropriate since significant degradation of the SBVS is slow and is not expected over this time period.