ArevaEPRDCPEm Resource

From: WELLS Russell (AREVA) [Russell.Wells@areva.com]
Sent: Thursday, May 05, 2011 4:37 PM
To: Tesfaye, Getachew
Cc: KOWALSKI David (AREVA); BENNETT Kathy (AREVA); DELANO Karen (AREVA); ROMINE Judy (AREVA); RYAN Tom (AREVA)
Subject: Response to U.S. EPR Design Certification Application RAI No. 390, FSAR Ch. 9, Supplement 13
Attachments: RAI 390 Supplement 13 Response US EPR DC.pdf

Getachew,

AREVA NP Inc. provided a schedule for technically correct and complete responses to the seven questions in RAI No. 390 on May 27, 2010. Supplement 1, Supplement 2, Supplement 3, Supplement 4 and Supplement 5 responses to RAI No. 390 were sent on June 25, 2010, August 3, 2010, August 19, 2010, September 2, 2010 and September 30, 2010, respectively, to provide a revised schedule. Supplement 6 response to RAI No. 390 was sent on October 15, 2010 to provide a technically correct and complete response to Question 09.02.02-106. Supplement 7 response to RAI No. 390 was sent on October 27, 2010 to provide a technically correct and complete response to Question 09.01.02-39. Supplement 8, Supplement 9, Supplement 10, Supplement 11 and Supplement 12 responses to RAI No. 390 were sent on November 30, 2010, January 12, 2011, February 9, 2011, March 8, 2011 and April 8, 2011, respectively, to provide a revised schedule for the five remaining questions.

The attached file, "RAI 390 Supplement 13 Response US EPR DC.pdf" provides technically correct and complete FINAL responses to the five 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 390 Questions 09.05.04-24 and 09.05.04-25.

The following table indicates the respective pages in the response document, "RAI 390 Supplement 13 Response US EPR DC.pdf," that contain AREVA NP's response to the subject questions.

Question #	Start Page	End Page
RAI 390 — 09.05.04-21	2	2
RAI 390 — 09.05.04-22	3	3
RAI 390 — 09.05.04-23	4	4
RAI 390 — 09.05.04-24	5	7
RAI 390 — 09.05.04-25	8	8

This concludes the formal AREVA NP response to RAI 390, and there are no questions from this RAI for which AREVA NP has not provided responses.

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: Friday, April 08, 2011 7:35 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. 390, FSAR Ch. 9, Supplement 12

Getachew,

AREVA NP Inc. provided a schedule for technically correct and complete responses to the seven questions in RAI No. 390 on May 27, 2010. Supplement 1, Supplement 2, Supplement 3, Supplement 4 and Supplement 5 responses to RAI No. 390 were sent on June 25, 2010, August 3, 2010, August 19, 2010, September 2, 2010 and September 30, 2010, respectively, to provide a revised schedule. Supplement 6 response to RAI No. 390 was sent on October 15, 2010 to provide a technically correct and complete response to Question 09.02.02-106. Supplement 7 response to RAI No. 390 was sent on October 27, 2010 to provide a technically correct and complete response to Question 09.01.02-39. Supplement 8, Supplement 9, Supplement 10 and Supplement 11 responses to RAI No. 390 were sent on November 30, 2010, January 12, 2011, February 9, 2011 and March 8, 2011, respectively, to provide a revised schedule for the remaining five questions.

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 remaining five questions is provided below.

Question #	Response Date
RAI 390 — 09.05.04-21	May 6, 2011
RAI 390 — 09.05.04-22	May 6, 2011
RAI 390 — 09.05.04-23	May 6, 2011
RAI 390 — 09.05.04-24	May 6, 2011
RAI 390 — 09.05.04-25	May 6, 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: Tuesday, March 08, 2011 11:53 AM
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. 390, FSAR Ch. 9, Supplement 11

Getachew,

AREVA NP Inc. provided a schedule for technically correct and complete responses to the seven questions in RAI No. 390 on May 27, 2010. Supplement 1, Supplement 2, Supplement 3, Supplement 4 and Supplement 5 responses to RAI No. 390 were sent on June 25, 2010, August 3, 2010, August 19, 2010, September 2, 2010 and September 30, 2010, respectively, to provide a revised schedule. Supplement 6 response to RAI No. 390 was sent on October 15, 2010 to provide a technically correct and complete response to Question 09.02.02-106. Supplement 7 response to RAI No. 390 was sent on October 27, 2010 to provide a technically correct and complete response to Question 09.01.02-39. Supplement 8, Supplement 9 and Supplement 10 responses to RAI No. 390 were sent on November 30, 2010, January 12, 2011 and February 9, 2011, respectively, to provide a revised schedule for the remaining five questions.

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 remaining five questions is provided below.

Question #	Response Date
RAI 390 — 09.05.04-21	April 8, 2011
RAI 390 — 09.05.04-22	April 8, 2011
RAI 390 — 09.05.04-23	April 8, 2011
RAI 390 — 09.05.04-24	April 8, 2011
RAI 390 — 09.05.04-25	April 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: BRYAN Martin (External RS/NB)
Sent: Wednesday, February 09, 2011 3:21 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. 390, FSAR Ch. 9, Supplement 10

Getachew,

AREVA NP Inc. provided a schedule for technically correct and complete responses to the seven questions in RAI No. 390 on May 27, 2010. Supplement 1, Supplement 2, Supplement 3, Supplement 4 and Supplement 5 responses to RAI No. 390 were sent on June 25, 2010, August 3, 2010, August 19, 2010, September 2, 2010 and September 30, 2010, respectively, to provide a revised schedule. Supplement 6 response to RAI No. 390 was sent on October 15, 2010 to provide a technically correct and complete response to Question 09.02.02-

106. Supplement 7 response to RAI No. 390 was sent on October 27, 2010 to provide a technically correct and complete response to Question 09.01.02-39. Supplement 8 and Supplement 9 responses to RAI No. 390 were sent on November 30, 2010 and January 12, 2011, respectively, to provide a revised schedule.

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 remaining five questions is provided below.

Question #	Response Date
RAI 390 — 09.05.04-21	March 10, 2011
RAI 390 — 09.05.04-22	March 10, 2011
RAI 390 — 09.05.04-23	March 10, 2011
RAI 390 — 09.05.04-24	March 10, 2011
RAI 390 — 09.05.04-25	March 10, 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: Wednesday, January 12, 2011 4:41 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. 390, FSAR Ch. 9, Supplement 9

Getachew,

AREVA NP Inc. provided a schedule for technically correct and complete responses to the seven questions in RAI No. 390 on May 27, 2010. Supplement 1, Supplement 2, Supplement 3, Supplement 4 and Supplement 5 responses to RAI No. 390 were sent on June 25, 2010, August 3, 2010, August 19, 2010, September 2, 2010 and September 30, 2010, respectively, to provide a revised schedule. Supplement 6 response to RAI No. 390 was sent on October 15, 2010 to provide a technically correct and complete response to Question 09.02.02-106. Supplement 7 response to RAI No. 390 was sent on October 27, 2010 to provide a technically correct and complete response to Question 09.01.02-39. Supplement 8 response to RAI No. 390 was sent on November 30, 2010 to provide a revised schedule.

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

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

Question #	Response Date
RAI 390 — 09.05.04-21	February 11, 2011
RAI 390 — 09.05.04-22	February 11, 2011
RAI 390 — 09.05.04-23	February 11, 2011
RAI 390 — 09.05.04-24	February 11, 2011
RAI 390 — 09.05.04-25	February 11, 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: Tuesday, November 30, 2010 3:05 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. 390, FSAR Ch. 9, Supplement 8

Getachew,

AREVA NP Inc. provided a schedule for technically correct and complete responses to the seven questions in RAI No. 390 on May 27, 2010. Supplement 1, Supplement 2, Supplement 3, Supplement 4 and Supplement 5 responses to RAI No. 390 were sent on June 25, 2010, August 3, 2010, August 19, 2010, September 2, 2010 and September 30, 2010, respectively, to provide a revised schedule. Supplement 6 response to RAI No. 390 was sent on October 15, 2010 to provide a technically correct and complete response to Question 09.02.02-106. Supplement 7 response to RAI No. 390 was sent on October 27, 2010 to provide a technically correct and complete response to Question 09.01.02-39.

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

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

Question #	Response Date
RAI 390 — 09.05.04-21	January 12, 2011
RAI 390 — 09.05.04-22	January 12, 2011
RAI 390 — 09.05.04-23	January 12, 2011
RAI 390 — 09.05.04-24	January 12, 2011
RAI 390 — 09.05.04-25	January 12, 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: Wednesday, October 27, 2010 2:41 PM
To: 'Tesfaye, Getachew'
Cc: DELANO Karen (RS/NB); ROMINE Judy (RS/NB); BENNETT Kathy (RS/NB); KOWALSKI David (RS/NB); RYAN Tom (RS/NB)
Subject: Response to U.S. EPR Design Certification Application RAI No. 390, FSAR Ch. 9, Supplement 7

Getachew,

AREVA NP Inc. provided a schedule for technically correct and complete responses to the seven questions in RAI No. 390 on May 27, 2010. Supplement 1, Supplement 2, Supplement 3, Supplement 4 and Supplement 5 responses to RAI No. 390 were sent on June 25, 2010, August 3, 2010, August 19, 2010, September 2, 2010 and September 30, 2010, respectively, to provide a revised schedule. Supplement 6 response to RAI No. 390 was sent on October 15, 2010 to provide a technically correct and complete response to one of the seven questions.

The attached file, "RAI 390 Supplement 7 Response US EPR DC.pdf" provides a technically correct and complete response to one of the six remaining questions, 09.01.02-39.

The following table indicates the respective pages in the response document, "RAI 390 Supplement 7 Response US EPR DC.pdf," that contain AREVA NP's response to the subject question.

Question #	Start Page	End Page
RAI 390 — 09.01.02-39	2	2

To allow additional time to interact with the NRC, the schedule is being revised for the remaining responses.

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

Question #	Response Date
RAI 390 — 09.05.04-21	December 2, 2010
RAI 390 — 09.05.04-22	December 2, 2010
RAI 390 — 09.05.04-23	December 2, 2010
RAI 390 — 09.05.04-24	December 2, 2010
RAI 390 — 09.05.04-25	December 2, 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: Friday, October 15, 2010 12:25 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. 390, FSAR Ch. 9, Supplement 6

Getachew,

AREVA NP Inc. provided a schedule for technically correct and complete responses to the seven questions in RAI No. 390 on May 27, 2010. Supplement 1, Supplement 2, Supplement 3, Supplement 4 and Supplement 5 responses to RAI No. 390 were sent on June 25, 2010, August 3, 2010, August 19, 2010, September 2, 2010 and September 30, 2010, respectively, to provide a revised schedule.

The attached file, “RAI 390 Supplement 6 Response US EPR DC.pdf” provides a technically correct and complete response to one of the seven 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 390 Question 09.02.02-106.

The following table indicates the respective pages in the response document, “RAI 390 Supplement 6 Response US EPR DC.pdf,” that contain AREVA NP’s response to the subject question.

Question #	Start Page	End Page
RAI 390 — 09.02.02-106	2	9

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

Question #	Response Date
RAI 390 — 09.01.02-39	October 27, 2010
RAI 390 — 09.05.04-21	October 27, 2010
RAI 390 — 09.05.04-22	October 27, 2010
RAI 390 — 09.05.04-23	October 27, 2010
RAI 390 — 09.05.04-24	October 27, 2010
RAI 390 — 09.05.04-25	October 27, 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: Thursday, September 30, 2010 12:51 PM
To: 'Tesfaye, Getachew'
Cc: DELANO Karen (RS/NB); ROMINE Judy (RS/NB); BENNETT Kathy (RS/NB); LENTZ Tony (External RS/NB); RYAN Tom (RS/NB)
Subject: Response to U.S. EPR Design Certification Application RAI No. 390, FSAR Ch. 9, Supplement 5

Getachew,

AREVA NP Inc. (AREVA NP) provided a schedule for technically correct and complete responses to the seven questions in RAI No. 390 on May 27, 2010. Supplement 1, Supplement 2, Supplement 3, and Supplement 4 responses to RAI No. 390 were sent on June 25, 2010, August 3, 2010, August 19, 2010, and September 2, 2010 respectively, to provide a revised schedule.

To provide additional time for interaction and feedback from the staff, a revised schedule is provided in this email for the response to the questions 09.01.02-39, 09.05.04-21, 09.05.04-22, 09.05.04-23, 09.05.04-24, and 09.05.04-25. The response to question 09.02.02-106 is being processed, a revised schedule is provided.

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

Question #	Response Date
RAI 390 — 09.01.02-39	October 27, 2010
RAI 390 — 09.02.02-106	October 15, 2010
RAI 390 — 09.05.04-21	October 27, 2010
RAI 390 — 09.05.04-22	October 27, 2010
RAI 390 — 09.05.04-23	October 27, 2010
RAI 390 — 09.05.04-24	October 27, 2010
RAI 390 — 09.05.04-25	October 27, 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: Thursday, September 02, 2010 4:12 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. 390, FSAR Ch. 9, Supplement 4

Getachew,

AREVA NP Inc. (AREVA NP) provided a schedule for technically correct and complete responses to the seven questions in RAI No. 390 on May 27, 2010. Supplement 1, Supplement 2 and Supplement 3 responses to RAI No. 390 were sent on June 25, 2010, August 3, 2010 and August 19, 2010 respectively, to provide a revised schedule.

On July 8, 2010, AREVA NP provided a DRAFT response to Question 09.01.02-39 for NRC review and comment. AREVA NP received NRC comments on August 30, 2010. To allow time for further interaction between AREVA NP and the NRC staff, a revised schedule for the response to Question 09.01.02-39 is provided in this e-mail. The response dates for the remaining questions have not changed.

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

Question #	Response Date
RAI 390 — 09.01.02-39	**September 30, 2010**
RAI 390 — 09.02.02-106	September 30, 2010
RAI 390 — 09.05.04-21	September 30, 2010
RAI 390 — 09.05.04-22	September 30, 2010
RAI 390 — 09.05.04-23	September 30, 2010
RAI 390 — 09.05.04-24	September 30, 2010
RAI 390 — 09.05.04-25	September 30, 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: Thursday, August 19, 2010 6:55 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. 390, FSAR Ch. 9, Supplement 3

Getachew,

AREVA NP Inc. provided a schedule for technically correct and complete responses to the seven questions in RAI No. 390 on May 27, 2010. Supplement 1 and Supplement 2 responses to RAI No. 390 were sent on June 25, 2010 and August 3, 2010 to provide a revised schedule. On July 8, 2010, AREVA provided a DRAFT response to Question 09.01.02-39 for NRC review. For the remainder of the questions, AREVA needs additional time to finalize the response and time to interact with the staff prior to the final response date provided below.

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

Question #	Response Date
RAI 390 — 09.01.02-39	September 02, 2010
RAI 390 — 09.02.02-106	September 30, 2010
RAI 390 — 09.05.04-21	September 30, 2010
RAI 390 — 09.05.04-22	September 30, 2010
RAI 390 — 09.05.04-23	September 30, 2010
RAI 390 — 09.05.04-24	September 30, 2010
RAI 390 — 09.05.04-25	September 30, 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, August 03, 2010 1:28 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. 390, FSAR Ch. 9, Supplement 2

Getachew,

AREVA NP Inc. provided a schedule for technically correct and complete responses to the seven questions in RAI No. 390 on May 27, 2010. Supplement 1 response to RAI No. 390 was sent on June 25, 2010 to provide a revised schedule. On July 8, 2010, AREVA provided a DRAFT response to Question 09.01.02-39 for NRC review and comment. As of today, AREVA has not received any feedback from the NRC staff and therefore the schedule for the final response has been extended.

To allow time for interaction between AREVA and the NRC staff, a revised schedule is provided in this e-mail for question 09.01.02-39.

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

Question #	Response Date
RAI 390 — 09.01.02-39	September 2, 2010
RAI 390 — 09.02.02-106	August 20, 2010
RAI 390 — 09.05.04-21	August 20, 2010
RAI 390 — 09.05.04-22	August 20, 2010
RAI 390 — 09.05.04-23	August 20, 2010
RAI 390 — 09.05.04-24	August 20, 2010
RAI 390 — 09.05.04-25	August 20, 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 25, 2010 7:19 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. 390, FSAR Ch. 9, Supplement 1

Getachew,

AREVA NP Inc. provided a schedule for technically correct and complete responses to the seven questions in RAI No. 390 on May 27, 2010.

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 questions has been revised and is provided below:

Question #	Response Date
RAI 390 — 09.01.02-39	August 3, 2010
RAI 390 — 09.02.02-106	August 20, 2010

RAI 390 — 09.05.04-21	August 20, 2010
RAI 390 — 09.05.04-22	August 20, 2010
RAI 390 — 09.05.04-23	August 20, 2010
RAI 390 — 09.05.04-24	August 20, 2010
RAI 390 — 09.05.04-25	August 20, 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, May 27, 2010 12:43 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. 390, FSAR Ch. 9

Getachew,

Attached please find AREVA NP Inc.'s response to the subject request for additional information (RAI). The attached file, "RAI 390 Response US EPR DC," provides a schedule since technically correct and complete responses to the seven questions are not provided.

The following table indicates the respective pages in the response document, "RAI 390 Response US EPR DC.pdf," that contain AREVA NP's response to the subject questions.

Question #	Start Page	End Page
RAI 390 — 09.01.02-39	2	2
RAI 390 — 09.02.02-106	3	4
RAI 390 — 09.05.04-21	5	5
RAI 390 — 09.05.04-22	6	6
RAI 390 — 09.05.04-23	7	7
RAI 390 — 09.05.04-24	8	8
RAI 390 — 09.05.04-25	9	9

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

Question #	Response Date
RAI 390 — 09.01.02-39	June 25, 2010
RAI 390 — 09.02.02-106	June 25, 2010
RAI 390 — 09.05.04-21	June 25, 2010
RAI 390 — 09.05.04-22	June 25, 2010
RAI 390 — 09.05.04-23	June 25, 2010
RAI 390 — 09.05.04-24	June 25, 2010
RAI 390 — 09.05.04-25	June 25, 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: Tesfaye, Getachew [mailto:Getachew.Tesfaye@nrc.gov]
Sent: Tuesday, April 27, 2010 3:07 PM
To: ZZ-DL-A-USEPR-DL
Cc: Bernal, Sara; Roach, Edward; Wheeler, Larry; Lee, Samuel; Radlinski, Robert; Segala, John; Hearn, Peter; Colaccino, Joseph; ArevaEPRDCPEm Resource
Subject: U.S. EPR Design Certification Application RAI No. 390(4614,4620,4616), FSAR Ch. 9

Attached please find the subject requests for additional information (RAI). A draft of the RAI was provided to you on April 20, 2010, and on April 27, 2010, 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 except to correct a typographical error you identified in Draft RAI Question 09.05.04-24. 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: 2931

Mail Envelope Properties (1F1CC1BBDC66B842A46CAC03D6B1CD4104530813)

Subject: Response to U.S. EPR Design Certification Application RAI No. 390, FSAR Ch. 9, Supplement 13
Sent Date: 5/5/2011 4:36:49 PM
Received Date: 5/5/2011 4:42:06 PM
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Response to

Request for Additional Information No. 390 (4614, 4620, 4616), Supplement 13

4/27/2010

U.S. EPR Standard Design Certification
AREVA NP Inc.
Docket No. 52-020
SRP Section: 09.01.02 - New and Spent Fuel Storage
SRP Section: 09.02.02 - Reactor Auxiliary Cooling Water Systems
SRP Section: 09.05.04 - Emergency Diesel Engine Fuel Oil Storage and Transfer System
Application Section: 9.5.4

QUESTIONS for Balance of Plant Branch 1 (SBPA)
QUESTIONS for Health Physics Branch (CHPB)

Question 09.05.04-21:

Follow-up to RAI 152, Question 09.05.04-15

Tier 1, Section 2.5.4, Subsection 3.1 of the U.S. EPR FSAR was revised in Revision 1 to state that "Equipment listed in Table 2.5.4-1 as ASME Code Section III is designed, welded, and hydrostatically tested in accordance with ASME Code Section III." ASME Section III specifies requirements for materials, design, fabrication, examination, testing, overpressure relief, marking, stamping and preparation of reports for equipment and for equipment supports. To clarify that the ASME Code Section III equipment and equipment supports provided for the DGFOSTS are in accordance with all of the applicable requirements of the Code, the applicant should revise this subsection either to state that the "construction" of the DGFOSTS equipment and equipment supports is in accordance with ASME Code Section III (ASME uses the word "construction" as an all-inclusive term comprising all of the aspects of the Code requirements) or to state that the materials, design, fabrication, examination, testing, overpressure relief, marking, stamping, and preparation of reports for ASME Code Section III DGFOSTS equipment and equipment supports are all in accordance with ASME Code Section III. Note that this RAI is applicable to all of the EDG support systems' equipment and equipment supports as described in FSAR Sections 9.5.4 through 9.5.8. The RAI will not be repeated for each section of the FSAR and the resolution will be tracked against Section 9.5.4 only.

Response to Question 09.05.04-21:

The response to this question is addressed in the Response to RAI 469, Question 14.03-16.

FSAR Impact:

The U.S. EPR FSAR will not be changed as a result of this question.

Question 09.05.04-22:

Follow-up to RAI 152, Question 09.05.04-15

Tier 1, Section 2.5.4, Subsections 3.16 through 3.20 of the U.S. EPR FSAR were added for Revision 1 to describe the applicability of ASME Code Section III to all of the EDG support system piping. This revision to the FSAR also deleted Subsection 3.3 which stated that the design of piping supports is in accordance with ASME Code Section III. As noted in RAI 9.5.4-21 for DGFOSTS equipment, the revised FSAR commitments address some, but not all of the requirements of ASME Code Section III. The revised FSAR also does not include the Code commitment for piping supports. To clarify that the ASME Code Section III piping and piping supports provided for the DGFOSTS are in accordance with all of the applicable requirements of the Code, the applicant should revise these subsections either to state that the construction of the DGFOSTS piping and supports is in accordance with ASME Code Section III or to state that the materials, design, fabrication, examination, testing, overpressure relief, marking, stamping, and preparation of reports for ASME Code Section III DGFOSTS piping and piping supports are all in accordance with ASME Code Section III. Note that this RAI is applicable to all of the EDG support systems' piping and piping supports as described in FSAR Sections 9.5.4 through 9.5.8. The RAI will not be repeated for each section of the FSAR and the resolution will be tracked against Section 9.5.4 only.

Response to Question 09.05.04-22:

The response to this question is addressed in the Response to RAI 469, Question 14.03-16.

FSAR Impact:

The U.S. EPR FSAR will not be changed as a result of this question.

Question 09.05.04-23:

Follow-up to RAI 152, Question 09.05.04-15

The revisions to Tier 1, Section 2.5.4, Subsections 3.1 and 3.16 through 3.20 of the U.S. EPR FSAR made in FSAR Revision 1 were also incorporated in Tier 1, Table 2.5.4-4 as revised ITAAC Item 3.1 and new ITAAC Items 3.16 through 3.20. Each of these ITAAC items should be revised as described above for the DGFOSTS equipment, piping and supports. In addition, the acceptance criteria such as "Equipment…has been welded…" and "Equipment…has been hydrostatically tested…" should be revised to require verification of the existence and certification of the appropriate ASME Code Section III documentation that should be provided for each equipment item that is in accordance with ASME Code Section III. This documentation includes, but is not necessarily limited to, design specifications, design reports, data reports and load capacity data sheets, as applicable. Therefore the applicant should revise Tier 1, Table 2.5.4-4, Items 3.1 and 3.16 through 3.20 to reflect the changes made in response to RAIs 9.5.4-21 and 9.5.4-22, as well as revise the acceptance criteria to require verification of the appropriate ASME Code Section III documentation. Note that this RAI is applicable to all of the EDG support systems as described in FSAR Sections 9.5.4 through 9.5.8. The RAI will not be repeated for each section of the FSAR and the resolution will be tracked against Section 9.5.4 only.

Response to Question 09.05.04-23:

The response to this question is addressed in the Response to RAI 469, Question 14.03-16.

FSAR Impact:

The U.S. EPR FSAR will not be changed as a result of this question.

Question 09.05.04-24:

Follow-up to RAI 152, Question 09.05.04-15

Tier 1 Table 2.5.4-1 includes a column to indicate the required function of each of the system components listed. However, the function descriptions added for FSAR Revision 1 are too general to serve any purpose. For example, the function of the fuel oil storage tanks is indicated as “Storage Volume”. The tank’s function is to store a 7-day supply of oil volume and that should be included in the description of the function. Another example is the function indicated for the fuel oil transfer pumps which is “Run”. The specific function is to run and supply oil at the required flow rate and pressure for continuous EDG operation at rated conditions. A final example is that of the check valves whose function is listed as “Open, Close”. A check valve’s function is to allow flow in only one direction through the system. These are some examples – the entire list should be revised as appropriate to more specifically describe the required functions of the components. As an alternative, the column could be deleted since the function of most components is apparent from the name of the component and/or the description in the FSAR text. If the column is deleted, Tier 1, Section 2.5.4, Subsection 3.13 and Subsection 9.5 of the FSAR would have to be revised accordingly. Note that this RAI is applicable to all of the EDG support systems as described in FSAR Sections 9.5.4 through 9.5.8. The RAI will not be repeated for each section of the FSAR and the resolution will be tracked against Section 9.5.4 only.

Response to Question 09.05.04-24:

The purpose of the function column in the U.S. EPR FSAR Tier 1 tables is to list the Tier 1 function(s) that are being tested and documented through ITAAC, not to describe the functions that the equipment performs. For example, in the case of keep-warm isolation valves, because the safety-significant function is for the valve to close, not to open, only the closed function is listed in the table. Listing this function is a necessary part of the acceptance criteria for the ITAAC.

For guidance on the features to be addressed in U.S. EPR FSAR Tier 1 ITAAC, AREVA has considered the statement in Appendix C.I.B, Item ix, which clarified that valves with "active" safety functions should be addressed in U.S. EPR FSAR Tier 1. Numerous specific ITAAC verify the functions for the active valves for each system.

AREVA NP based its development of U.S. EPR FSAR Tier 1 on Standard Review Plan (SRP) 14.3. SRP 14.3 states that not all information required for compliance with regulations and described in Tier 2 is required to be in Tier 1 and have ITAAC. SRP 14.3 describes a graded approach to selecting information from Tier 2 and including that information in Tier 1 with ITAAC. SRP 14.3 identifies specific non-safety-related criteria for inclusion in Tier 1 such as severe accident, anticipated transient without scram (ATWS) and fire protection.

U.S. EPR FSAR Tier 2 material is screened to determine if it is ”safety significant” as described in U.S. EPR FSAR Tier 2, Section 14.3. This screening process uses criteria developed from SRP 14.3, Appendixes A and C. The first process uses discipline checklists that include ITAAC criteria based on guidance in SRP 14.3. For example, the discipline checklist for systems provides guidance to create ITAAC for the following features:

- Major safety-related features.

- Equipment that is seismic, EQ or 1E.
- Safety-related equipment.
- Design features provided for severe accident mitigation, station blackout (SBO) and ATWS.
- Significant system features identified in the applicable SRPs for the system.
- Significant safety-related (and non-safety-related) functions derived from those listed in system design requirements documents.

The second process involves an expert review panel that selects safety-significant features based on assumptions and insights from key safety and integrated plant safety analyses in U.S. EPR FSAR Tier 2, where plant performance is dependent on contributions from multiple systems. This process is based on guidance in SRP 14.3, Page 14.3-21. Results of the expert review panel meetings are provided in U.S. EPR FSAR Tier 2, Tables 14.3-1 through 14.3-7.

During a review of U.S. EPR FSAR Tier 1, Table 2.5.4-1—Emergency Diesel Generator Equipment Mechanical Design, components were identified in this table that were present for seismic interaction considerations. U.S. EPR FSAR Tier 1, Section 3.9, "Seismic Subsystem Interaction" was previously added to the U.S. EPR FSAR as part of the response to RAI 370, Supplement 4, Question 03.07.03-38. U.S. EPR FSAR Tier 1, Section 3.9 requires a seismic interaction analysis summary, which concludes that non-Seismic Category I subsystems located within a potential impact zone of a Seismic Category I subsystem, will not impair the ability of Seismic Category I subsystems to perform their intended safety function. U.S. EPR FSAR Tier 1, Section 2.5.4 will be revised to remove references to Seismic Category II components, which are addressed in U.S. EPR FSAR Tier 1, Section 3.9.

U.S. EPR FSAR Tier 1, Section 2.5.4 will also be revised to resolve inconsistencies between U.S. EPR FSAR Tier 1 and Tier 2 in the areas of credited safety function, classification information (e.g., safety, seismic and ASME), and design information shown on the functional arrangement drawings of EDG support systems.

The following items in U.S. EPR FSAR Tier 1, Section 2.5.4 will be revised:

- Table 2.5.4-1—Emergency Diesel Generator Equipment Mechanical Design.
- Figure 2.5.4-1—Emergency Diesel Generator Fuel Oil Storage and Transfer System Functional Arrangement.
- Figure 2.5.4-2—Emergency Diesel Generator Lubricating Oil System Functional Arrangement.
- Figure 2.5.4-3—Emergency Diesel Generator Air Intake and Exhaust System Functional Arrangement.
- Figure 2.5.4-4—Emergency Diesel Generator Cooling Water System Functional Arrangement.
- Figure 2.5.4-5—Emergency Diesel Generator Starting Air System Functional Arrangement.

FSAR Impact:

U.S. EPR FSAR Tier 1, Section 2.5.4 will be revised as described in the response and indicated on the enclosed markup.

Question 09.05.04-25:

Follow-up to RAI 152, Question 09.05.04-15

In response to RAI 09.05.04-10, the applicant verified that the fuel oil storage tank capacity will be based on the fuel consumption of each diesel generator while operating at the continuous rating for seven days, plus an additional ten percent for surveillance testing. This is one acceptable method in ANSI/ANS 59.51 for determining tank capacity. However, Item 3.9 of Tier 1 Table 2.5.4-4 states the acceptance criteria for the fuel oil storage tanks as "greater than the volume of fuel oil consumed by the EDG operating at the continuous rating for seven days" without noting the additional 10 percent margin. The applicant should revise Item 3.9 to include the 10 percent margin.

Response to Question 09.05.04-25:

With respect to the component performance requirements of the diesel integral and day tanks, Section 5.5.1 in ANSI/ANS-59.51 specifies the following:

> "This capacity shall assume the fuel consumption with the diesel running at 100 percent continuous rated load plus a minimum additional margin of 10 percent based on the minimum quality fuel oil that is acceptable and the most adverse operating conditions. In addition to usable fuel oil capacity, day and supply tank design should include allowance for unusable fuel oil due to such factors as tank level instrumentation error, unaccessible fuel oil volumes due to the location of the inlet and outlet nozzles and pipes, and vortexing effects."

The phrase "plus an additional ten percent for surveillance testing" will be deleted from U.S. EPR FSAR Tier 2, Section 9.5.4.2.2 under the "Main Fuel Oil Storage Tank" heading. The margin assumptions in ANSI/ANS-59.51 include more than just an allowance for testing. The revised sentence will state:

> "The capacity of each tank is based on the fuel consumption by one diesel engine for operation at the continuous rating for seven days in accordance with ANSI/ANS-59.51 (Reference 3)."

With respect to the EDG fuel oil storage tank capacity requirements, the U.S. EPR FSAR Tier 1 and Tier 2 descriptions will be consistent with each other, and with ANSI/ANS-59.51. There is no need to revise Item 3.9 in U.S. EPR FSAR Tier 1, Table 2.5.4-4—Emergency Diesel Generator ITAAC.

FSAR Impact:

U.S. EPR FSAR Tier 2, Section 9.5.4.2.2 will be revised as described in the response and indicated on the enclosed markup.

U.S. EPR Final Safety Analysis Report Markups

Table 2.5.4-1—Emergency Diesel Generator Equipment Mechanical Design (14 Sheets)

Description	Tag Number (1)	Location	ASME Code Section III	Function	Seismic Category
Check Valve	30XJN10AA226 30XJN20AA226 30XJN30AA226 30XJN40AA226	Division 1 EPGB Division 2 EPGB Division 3 EPGB Division 4 EPGB	~~Yes~~No	Open, Close	I
Check Valve	30XJN10AA227 30XJN20AA227 30XJN30AA227 30XJN40AA227	Division 1 EPGB Division 2 EPGB Division 3 EPGB Division 4 EPGB	No	Open, Close	I
Check Valve	30XJN10AA228 30XJN20AA228 30XJN30AA228 30XJN40AA228	Division 1 EPGB Division 2 EPGB Division 3 EPGB Division 4 EPGB	No	Open, Close	I
Fuel Oil Filter	30XJN10AT267 30XJN20AT267 30XJN30AT267 30XJN40AT267	Division 1 EPGB Division 2 EPGB Division 3 EPGB Division 4 EPGB	Yes	Filter	I
Fuel Oil Strainer	30XJN10AT271 30XJN20AT271 30XJN30AT271 30XJN40AT271	Division 1 EPGB Division 2 EPGB Division 3 EPGB Division 4 EPGB	Yes	Filter	I
Fuel Oil Pump	30XJN10AP110 30XJN20AP110 30XJN30AP110 30XJN40AP110	Division 1 EPGB Division 2 EPGB Division 3 EPGB Division 4 EPGB	No	Run	I

09.05.04-24

Table 2.5.4-1—Emergency Diesel Generator Equipment Mechanical Design (14 Sheets)

Description	Tag Number (1)	Location	ASME Code Section III	Function	Seismic Category
Fuel Oil Pump	30XJN10AP120 30XJN20AP120 30XJN30AP120 30XJN40AP120	Division 1 EPGB Division 2 EPGB Division 3 EPGB Division 4 EPGB	Yes	Run	I
Fuel Oil Filter	30XJN10AT280 30XJN20AT280 30XJN30AT280 30XJN40AT280	Division 1 EPGB Division 2 EPGB Division 3 EPGB Division 4 EPGB	No	Filter	I
Lube Oil System Valve	30XJV10AA170 30XJV20AA170 30XJV30AA170 30XJV40AA170	Division 1 EPGB Division 2 EPGB Division 3 EPGB Division 4 EPGB	Yes 09.05.04-24	~~Open,~~ Close	I
Lube Oil System Valve	30XJV10AA171 30XJV20AA171 30XJV30AA171 30XJV40AA171	Division 1 EPGB Division 2 EPGB Division 3 EPGB Division 4 EPGB	Yes	~~Open,~~ Close	I
Lube Oil System Valve	30XJV10AA154 30XJV20AA154 30XJV30AA154 30XJV40AA154	Division 1 EPGB Division 2 EPGB Division 3 EPGB Division 4 EPGB	Yes	Open, Close	I
Lube Oil Temperature Control Valve	30XJV10AA111 30XJV20AA111 30XJV30AA111 30XJV40AA111	Division 1 EPGB Division 2 EPGB Division 3 EPGB Division 4 EPGB	Yes	Open, Close	I

Table 2.5.4-1—Emergency Diesel Generator Equipment Mechanical Design (14 Sheets)

Description	Tag Number (1)	Location	ASME Code Section III	Function	Seismic Category
Lube Oil Strainer Supply Selector Valve	30XJV10AA265 30XJV20AA265 30XJV30AA265 30XJV40AA265	Division 1 EPGB Division 2 EPGB Division 3 EPGB Division 4 EPGB	Yes	Open, Close	I
Lube Oil Pump Discharge Filter Selector~~ion~~ Valve	30XJV10AA260 30XJV20AA260 30XJV30AA260 30XJV40AA260	Division 1 EPGB Division 2 EPGB Division 3 EPGB Division 4 EPGB	Yes	Open, Close	I
Lube Oil System Heat Exchanger	30XJV10AC001 30XJV20AC001 30XJV30AC001 30XJV40AC001	Division 1 EPGB Division 2 EPGB Division 3 EPGB Division 4 EPGB	Yes	Heat transfer device	I
Check Valve	30XJV10AA207 30XJV20AA207 30XJV30AA207 30XJV40AA207	Division 1 EPGB Division 2 EPGB Division 3 EPGB Division 4 EPGB	Yes 09.05.04-24	~~Open,~~ Close	I
Check Valve	30XJV10AA206 30XJV20AA206 30XJV30AA206 30XJV40AA206	Division 1 EPGB Division 2 EPGB Division 3 EPGB Division 4 EPGB	Yes	~~Open,~~ Close	I
Lube Oil Filter	30XJV10AT110A 30XJV20AT110A 30XJV30AT110A 30XJV40AT110A	Division 1 EPGB Division 2 EPGB Division 3 EPGB Division 4 EPGB	Yes	Filter	I

Table 2.5.4-1—Emergency Diesel Generator Equipment Mechanical Design (14 Sheets)

Description	Tag Number (1)	Location	ASME Code Section III	Function	Seismic Category
Lube Oil Filter	30XJV10AT110B 30XJV20AT110B 30XJV30AT110B 30XJV40AT110B	Division 1 EPGB Division 2 EPGB Division 3 EPGB Division 4 EPGB	Yes	Filter	I
Lube Oil Strainer	30XJV10AT115A 30XJV20AT115A 30XJV30AT115A 30XJV40AT115A	Division 1 EPGB Division 2 EPGB Division 3 EPGB Division 4 EPGB	Yes	Filter	I
Lube Oil Strainer	30XJV10AT115B 30XJV20AT115B 30XJV30AT115B 30XJV40AT115B	Division 1 EPGB Division 2 EPGB Division 3 EPGB Division 4 EPGB	Yes	Filter	I
Lube Oil Pump	30XJV10AP110 30XJV20AP110 30XJV30AP110 30XJV40AP110	Division 1 EPGB Division 2 EPGB Division 3 EPGB Division 4 EPGB	~~Yes~~No	Run	I
Lube Oil Pump Suction Strainer	30XJV10AT109 30XJV20AT109 30XJV30AT109 30XJV40AT109	Division 1 EPGB Division 2 EPGB Division 3 EPGB Division 4 EPGB	~~Yes~~No	Filter	I
Engine Sump	30XJV10BB110 30XJV20BB110 30XJV30BB110 30XJV40BB110	Division 1 EPGB Division 2 EPGB Division 3 EPGB Division 4 EPGB	~~Yes~~No	Storage volume	I

09.05.04-24

Table 2.5.4-1—Emergency Diesel Generator Equipment Mechanical Design (14 Sheets)

Description	Tag Number (1)	Location	ASME Code Section III	Function	Seismic Category
Lube Oil Tank	30XJV10BB100 30XJV20BB100 30XJV30BB100 30XJV40BB100	Division 1 EPGB Division 2 EPGB Division 3 EPGB Division 4 EPGB	Yes	Storage volume	I
Keep-Warm/Prelube Pump Relief Valve	30XJV10AA194 30XJV20AA194 30XJV30AA194 30XJV40AA194	Division 1 EPGB Division 2 EPGB Division 3 EPGB Division 4 EPGB	Yes	Open	I
~~Keep-Warm/Prelube Pump~~	~~30XJV10AP170~~ ~~30XJV20AP170~~ ~~30XJV30AP170~~ ~~30XJV40AP170~~	~~Division 1 EPGB~~ ~~Division 2 EPGB~~ ~~Division 3 EPGB~~ ~~Division 4 EPGB~~	~~N/A~~	~~Stop~~	~~II~~
~~Lube Oil Keep-Warm Heater~~	~~30XJV10AH170~~ ~~30XJV20AH170~~ ~~30XJV30AH170~~ ~~30XJV40AH170~~	~~Division 1 EPGB~~ ~~Division 2 EPGB~~ ~~Division 3 EPGB~~ ~~Division 4 EPGB~~	~~N/A~~	~~De-energize~~	~~II~~
~~Lube Oil Strainer~~	~~30XJV10AT272A~~ ~~30XJV20AT272A~~ ~~30XJV30AT272A~~ ~~30XJV40AT272A~~	~~Division 1 EPGB~~ ~~Division 2 EPGB~~ ~~Division 3 EPGB~~ ~~Division 4 EPGB~~	~~N/A~~	~~Filter~~	~~II~~
~~Lube Oil Strainer~~	~~30XJV10AT272B~~ ~~30XJV20AT272B~~ ~~30XJV30AT272B~~ ~~30XJV40AT272B~~	~~Division 1 EPGB~~ ~~Division 2 EPGB~~ ~~Division 3 EPGB~~ ~~Division 4 EPGB~~	~~N/A~~	~~Filter~~	~~II~~

09.05.04-24

Table 2.5.4-1—Emergency Diesel Generator Equipment Mechanical Design (14 Sheets)

Description	Tag Number (1)	Location	ASME Code Section III	Function	Seismic Category
~~Keep-Warm/Prelube Pump Duplex Suction Strainer Selection Valve~~	~~30XJV10AA272~~ ~~30XJV20AA272~~ ~~30XJV30AA272~~ ~~30XJV40AA272~~	~~Division 1 EPGB~~ ~~Division 2 EPGB~~ ~~Division 3 EPGB~~ ~~Division 4 EPGB~~	~~N/A~~	~~Open, close~~	~~II~~
Air Intake Filter	30XJQ10AT110A 30XJQ20AT110A 30XJQ30AT110A 30XJQ40AT110A	Division 1 EPGB Division 2 EPGB Division 3 EPGB Division 4 EPGB	Yes	Filter	I
Air Intake Filter	30XJQ10AT110B 30XJQ20AT110B 30XJQ30AT110B 30XJQ40AT110B	Division 1 EPGB Division 2 EPGB Division 3 EPGB Division 4 EPGB	Yes	Filter	I
Air Intake Silencer	30XJQ10BS111 30XJQ20BS111 30XJQ30BS111 30XJQ40BS111	Division 1 EPGB Division 2 EPGB Division 3 EPGB Division 4 EPGB	Yes	~~Noise Reduction~~Design DP	I
Air Intake Heater	30XJQ10AH111 30XJQ20AH111 30XJQ30AH111 30XJQ40AH111	Division 1 EPGB Division 2 EPGB Division 3 EPGB Division 4 EPGB	Yes	Heater	I
Air Intake Damper	30XJQ10AA112A 30XJQ20AA112A 30XJQ30AA112A 30XJQ40AA112A	Division 1 EPGB Division 2 EPGB Division 3 EPGB Division 4 EPGB	Yes	Open	I

09.05.04-24

Table 2.5.4-1—Emergency Diesel Generator Equipment Mechanical Design (14 Sheets)

Description	Tag Number (1)	Location	ASME Code Section III	Function	Seismic Category
Air Intake Damper	30XJQ10AA112B 30XJQ20AA112B 30XJQ30AA112B 30XJQ40AA112B	Division 1 EPGB Division 2 EPGB Division 3 EPGB Division 4 EPGB	Yes	Open	I
Exhaust Bypass Device	30XJR10AA121 30XJR20AA121 30XJR30AA121 30XJR40AA121	Division 1 EPGB Division 2 EPGB Division 3 EPGB Division 4 EPGB	Yes	Provide Engine Exhaust Path	I
~~Exhaust Silencer~~	~~30XJR10BS140~~ ~~30XJR20BS140~~ ~~30XJR30BS140~~ ~~30XJR40BS140~~	~~Division 1 EPGB~~ ~~Division 2 EPGB~~ ~~Division 3 EPGB~~ ~~Division 4 EPGB~~	~~N/A~~	~~Noise Reduction~~	~~II~~
~~Mixing Pipe~~	~~30XJR10AM140~~ ~~30XJR20AM140~~ ~~30XJR30AM140~~ ~~30XJR40AM140~~	~~Division 1 EPGB~~ ~~Division 2 EPGB~~ ~~Division 3 EPGB~~ ~~Division 4 EPGB~~	~~N/A~~	~~Emission Control~~	~~II~~
~~Filter~~	~~30XJR10AT140~~ ~~30XJR20AT140~~ ~~30XJR30AT140~~ ~~30XJR40AT140~~	~~Division 1 EPGB~~ ~~Division 2 EPGB~~ ~~Division 3 EPGB~~ ~~Division 4 EPGB~~	~~N/A~~	~~Filter~~	~~II~~
~~Filter~~	~~30XJR10AT141~~ ~~30XJR20AT141~~ ~~30XJR30AT141~~ ~~30XJR40AT141~~	~~Division 1 EPGB~~ ~~Division 2 EPGB~~ ~~Division 3 EPGB~~ ~~Division 4 EPGB~~	~~N/A~~	~~Filter~~	~~II~~

09.05.04-24

Table 2.5.4-1—Emergency Diesel Generator Equipment Mechanical Design (14 Sheets)

Description	Tag Number (1)	Location	ASME Code Section III	Function	Seismic Category
Jacket Water Heat Exchanger	30XJG10AC001 30XJG20AC001 30XJG30AC001 30XJG40AC001	Division 1 EPGB Division 2 EPGB Division 3 EPGB Division 4 EPGB	Yes	Heat transfer device	I
Combustion Air Preheater Isolation Valve	30XJG10AA110 30XJG20AA110 30XJG30AA110 30XJG40AA110	Division 1 EPGB Division 2 EPGB Division 3 EPGB Division 4 EPGB	Yes	Open, Close	I
Jacket Water Heat Temperature Regulating Valve	30XJG10AA111 30XJG20AA111 30XJG30AA111 30XJG40AA111	Division 1 EPGB Division 2 EPGB Division 3 EPGB Division 4 EPGB	Yes	Open, Close	I
Cooling System Expansion Tank	30XJG10BB001 30XJG20BB001 30XJG30BB001 30XJG40BB001	Division 1 EPGB Division 2 EPGB Division 3 EPGB Division 4 EPGB	Yes	Storage volume	I
Fill Valve	30XJG10AA150 30XJG20AA150 30XJG30AA150 30XJG40AA150	Division 1 EPGB Division 2 EPGB Division 3 EPGB Division 4 EPGB	Yes	~~Open,~~ Close	I
Fill Valve	30XJG10AA151 30XJG20AA151 30XJG30AA151 30XJG40AA151	Division 1 EPGB Division 2 EPGB Division 3 EPGB Division 4 EPGB	Yes	~~Open,~~ Close	I

09.05.04-24

Table 2.5.4-1—Emergency Diesel Generator Equipment Mechanical Design (14 Sheets)

Description	Tag Number [1]	Location	ASME Code Section III	Function	Seismic Category
Keep Warm Circuit Isolation Valve	30XJG10AA160 30XJG20AA160 30XJG30AA160 30XJG40AA160	Division 1 EPGB Division 2 EPGB Division 3 EPGB Division 4 EPGB	Yes	Close	I
Keep Warm Circuit Isolation Valve	30XJG10AA161 30XJG20AA161 30XJG30AA161 30XJG40AA161	Division 1 EPGB Division 2 EPGB Division 3 EPGB Division 4 EPGB	Yes	Close	I
Jacket Water Standby Circulation Pump Relief Valve	30XJG10AA192 30XJG20AA192 30XJG30AA192 30XJG40AA192	Division 1 EPGB Division 2 EPGB Division 3 EPGB Division 4 EPGB	Yes	Close	I
Check Valve	30XJG10AA201 30XJG20AA201 30XJG30AA201 30XJG40AA201	Division 1 EPGB Division 2 EPGB Division 3 EPGB Division 4 EPGB	Yes	Open, Close	I
Check Valve	30XJG10AA202 30XJG20AA202 30XJG30AA202 30XJG40AA202	Division 1 EPGB Division 2 EPGB Division 3 EPGB Division 4 EPGB	Yes	Close	I
Check Valve	30XJG10AA203 30XJG20AA203 30XJG30AA203 30XJG40AA203	Division 1 EPGB Division 2 EPGB Division 3 EPGB Division 4 EPGB	Yes	Close	I

09.05.04-24

09.05.04-24

Table 2.5.4-1—Emergency Diesel Generator Equipment Mechanical Design (14 Sheets)

Description	Tag Number (1)	Location	ASME Code Section III	Function	Seismic Category
Jacket Water Pump	30XJG10AP110 30XJG20AP110 30XJG30AP110 30XJG40AP110	Division 1 EPGB Division 2 EPGB Division 3 EPGB Division 4 EPGB	No	Run	I
~~Jacket Water Standby Circulation Pump~~	~~30XJG10AP160~~ ~~30XJG20AP160~~ ~~30XJG30AP160~~ ~~30XJG40AP160~~	~~Division 1 EPGB~~ ~~Division 2 EPGB~~ ~~Division 3 EPGB~~ ~~Division 4 EPGB~~	~~No~~	~~Stop~~	~~II~~
~~Jacket Water Standby Heater~~	~~30XJG10AH160~~ ~~30XJG20AH160~~ ~~30XJG30AH160~~ ~~30XJG40AH160~~	~~Division 1 EPGB~~ ~~Division 2 EPGB~~ ~~Division 3 EPGB~~ ~~Division 4 EPGB~~	~~No~~	~~De-energize~~	~~II~~
Intercooler Water Heat Exchanger	30XJG10AC002 30XJG20AC002 30XJG30AC002 30XJG40AC002	Division 1 EPGB Division 2 EPGB Division 3 EPGB Division 4 EPGB	Yes	Heat transfer device	I
Intercooler Temperature Regulating Valve	30XJG10AA121 30XJG20AA121 30XJG30AA121 30XJG40AA121	Division 1 EPGB Division 2 EPGB Division 3 EPGB Division 4 EPGB	Yes	Open, Close	I
Intercooler Cooling Water Pump	30XJG10AP120 30XJG20AP120 30XJG30AP120 30XJG40AP120	Division 1 EPGB Division 2 EPGB Division 3 EPGB Division 4 EPGB	No	Run	I

Table 2.5.4-1—Emergency Diesel Generator Equipment Mechanical Design (14 Sheets)

Description	Tag Number (1)	Location	ASME Code Section III	Function	Seismic Category
Intercooler Combustion Air Heat Exchanger	30XJG10AC120A 30XJG20AC120A 30XJG30AC120A 30XJG40AC120A	Division 1 EPGB Division 2 EPGB Division 3 EPGB Division 4 EPGB	No	Heat transfer device	I
Governor Oil Cooler	30XJG10AC120C 30XJG20AC120C 30XJG30AC120C 30XJG40AC120C	Division 1 EPGB Division 2 EPGB Division 3 EPGB Division 4 EPGB	No	Heat transfer device	I
Governor Booster	30XJG10AC130 30XJG20AC130 30XJG30AC130 30XJG40AC130	Division 1 EPGB Division 2 EPGB Division 3 EPGB Division 4 EPGB	No	Run	I
Generator Bearing Cooler	30XJG10AC170 30XJG20AC170 30XJG30AC170 30XJG40AC170	Division 1 EPGB Division 2 EPGB Division 3 EPGB Division 4 EPGB	Yes	Heat transfer device	I
Starting Air Receiver	30XJX10BB001A 30XJX20BB001A 30XJX30BB001A 30XJX40BB001A	Division 1 EPGB Division 2 EPGB Division 3 EPGB Division 4 EPGB	Yes	Storage Volume	I
Check Valve	30XJX10AA210 30XJX20AA210 30XJX30AA210 30XJX40AA210	Division 1 EPGB Division 2 EPGB Division 3 EPGB Division 4 EPGB	Yes	Open, close	I

09.05.04-24

09.05.04-24

Table 2.5.4-1—Emergency Diesel Generator Equipment Mechanical Design (14 Sheets)

Description	Tag Number (1)	Location	ASME Code Section III	Function	Seismic Category
~~Air Dryer~~	~~30XJX10AT005~~ ~~30XJX20AT005~~ ~~30XJX30AT005~~ ~~30XJX40AT005~~	~~Division 1 EPGB~~ ~~Division 2 EPGB~~ ~~Division 3 EPGB~~ ~~Division 4 EPGB~~	~~No~~	~~Moisture Control~~	~~II~~
~~Filter~~	~~30XJX10AT004~~ ~~30XJX20AT004~~ ~~30XJX30AT004~~ ~~30XJX40AT004~~	~~Division 1 EPGB~~ ~~Division 2 EPGB~~ ~~Division 3 EPGB~~ ~~Division 4 EPGB~~	~~No~~	~~Filter~~	~~II~~
~~Filter~~	~~30XJX10AT003~~ ~~30XJX20AT003~~ ~~30XJX30AT003~~ ~~30XJX40AT003~~	~~Division 1 EPGB~~ ~~Division 2 EPGB~~ ~~Division 3 EPGB~~ ~~Division 4 EPGB~~	~~No~~	~~Filter~~	~~II~~
~~Moisture Separator~~	~~30XJX10AT002~~ ~~30XJX20AT002~~ ~~30XJX30AT002~~ ~~30XJX40AT002~~	~~Division 1 EPGB~~ ~~Division 2 EPGB~~ ~~Division 3 EPGB~~ ~~Division 4 EPGB~~	~~No~~	~~Moisture Control~~	~~II~~
~~Air Compressor~~	~~30XJX10AN001~~ ~~30XJX20AN001~~ ~~30XJX30AN001~~ ~~30XJX40AN001~~	~~Division 1 EPGB~~ ~~Division 2 EPGB~~ ~~Division 3 EPGB~~ ~~Division 4 EPGB~~	~~No~~	~~Supply Starting Air~~	~~II~~

1) Equipment tag numbers are provided for information only and are not part of the certified design.

Figure 2.5.4-1—Emergency Diesel Generator Fuel Oil Storage and Transfer System Functional Arrangement
Sheet 1 of 4

09.05.04-24

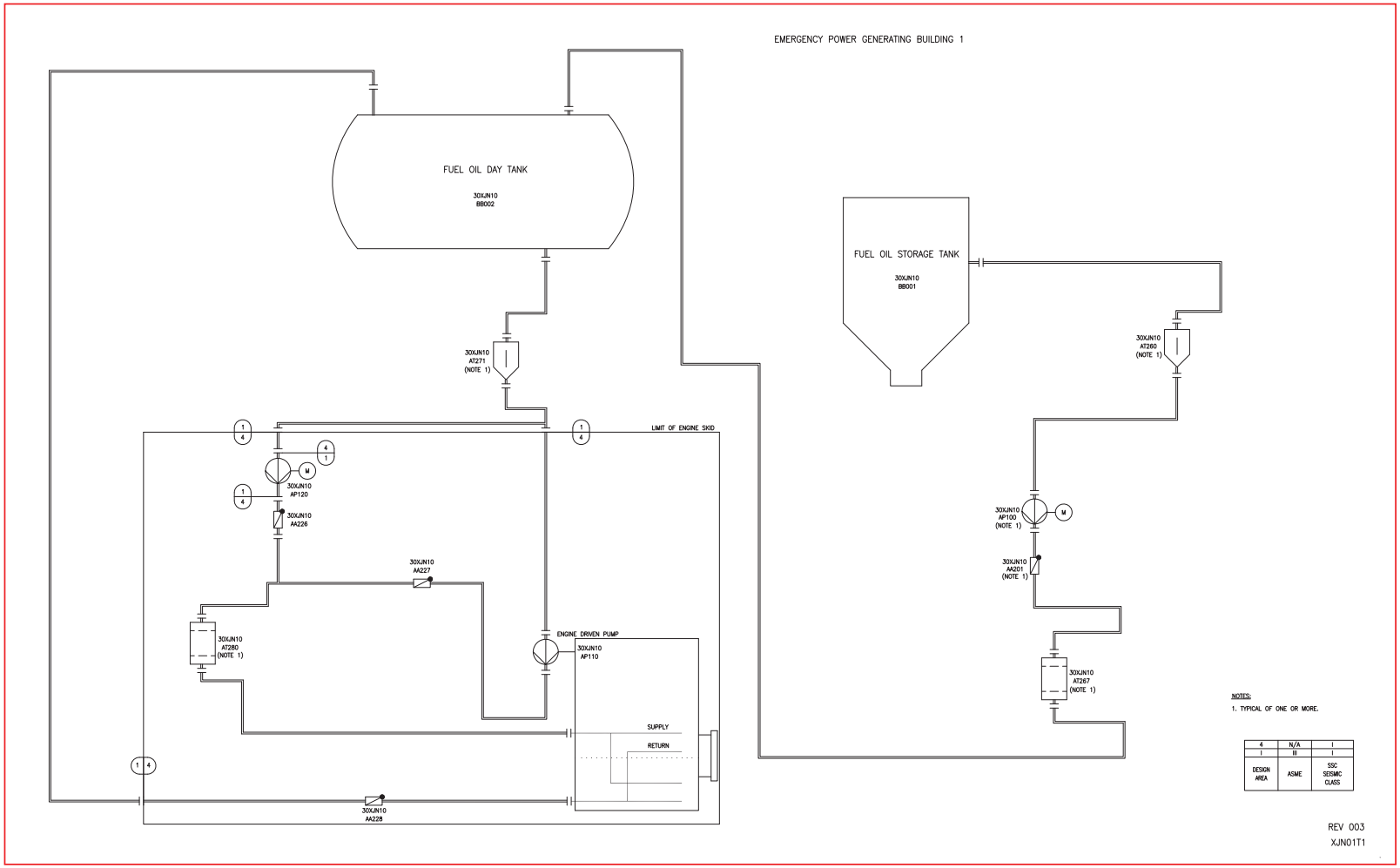


Figure 2.5.4-1—Emergency Diesel Generator Fuel Oil Storage and Transfer System Functional Arrangement
Sheet 2 of 4

09.05.04-24

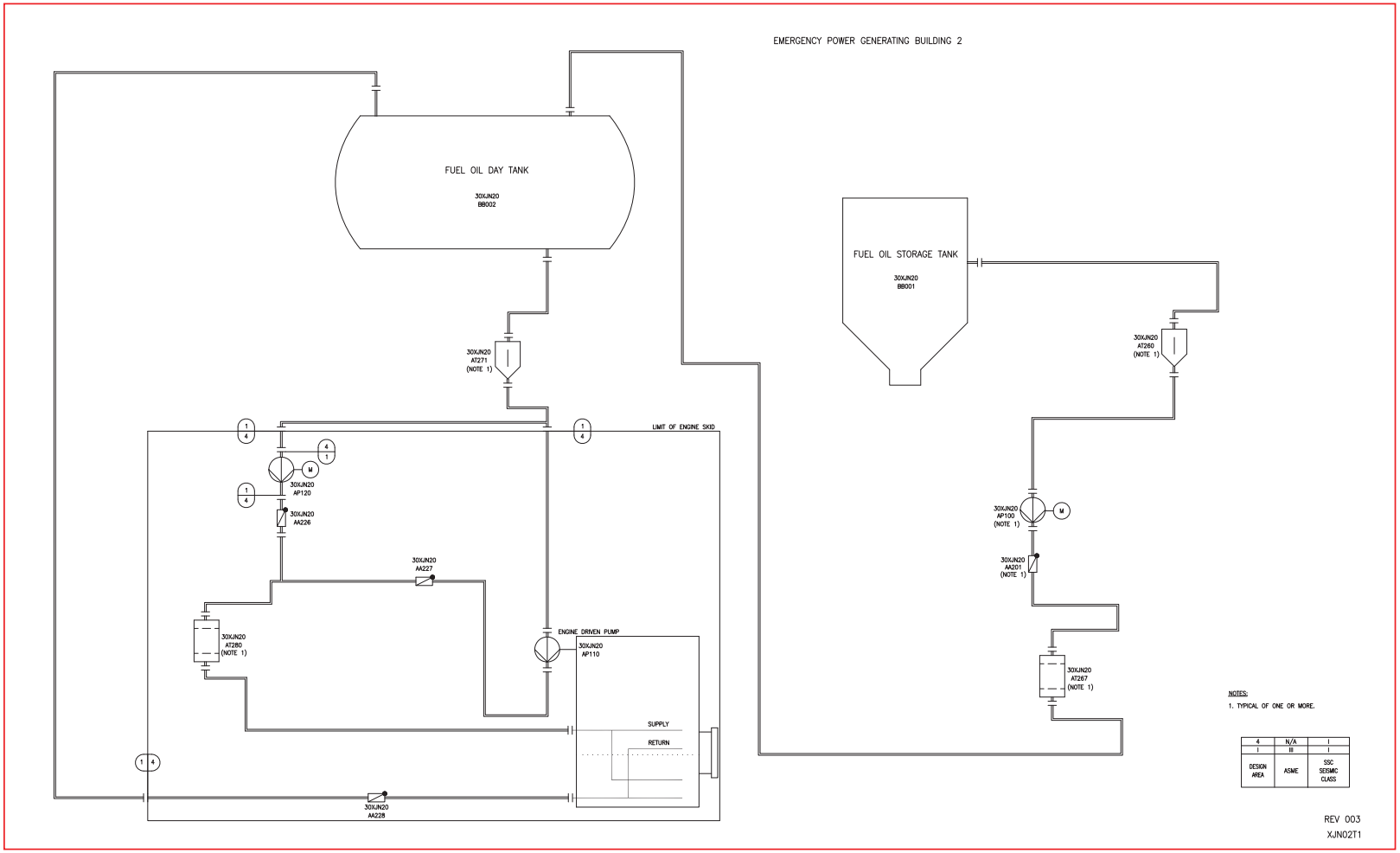


Figure 2.5.4-1—Emergency Diesel Generator Fuel Oil Storage and Transfer System Functional Arrangement
Sheet 3 of 4

09.05.04-24

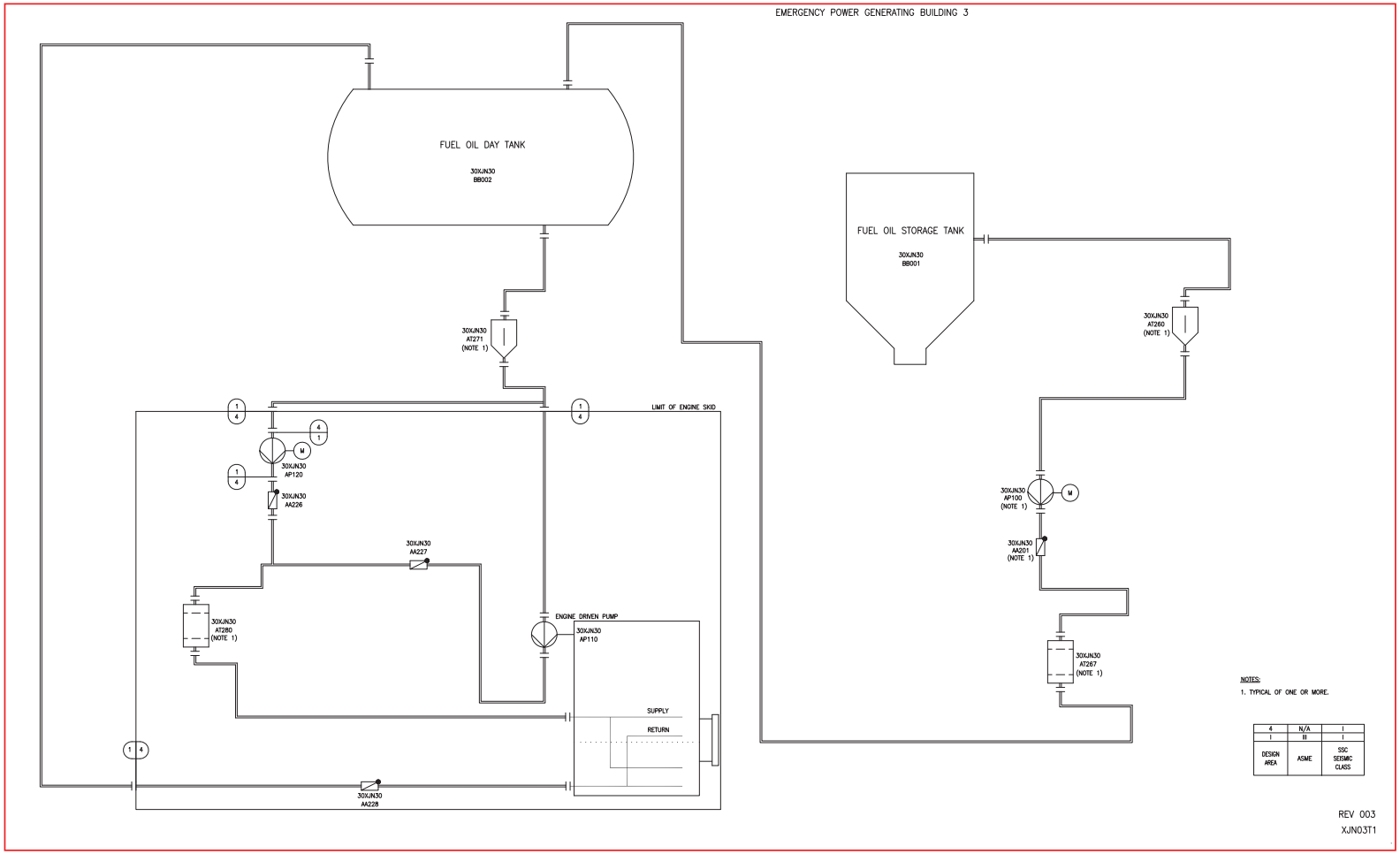


Figure 2.5.4-1—Emergency Diesel Generator Fuel Oil Storage and Transfer System Functional Arrangement
Sheet 4 of 4

09.05.04-24

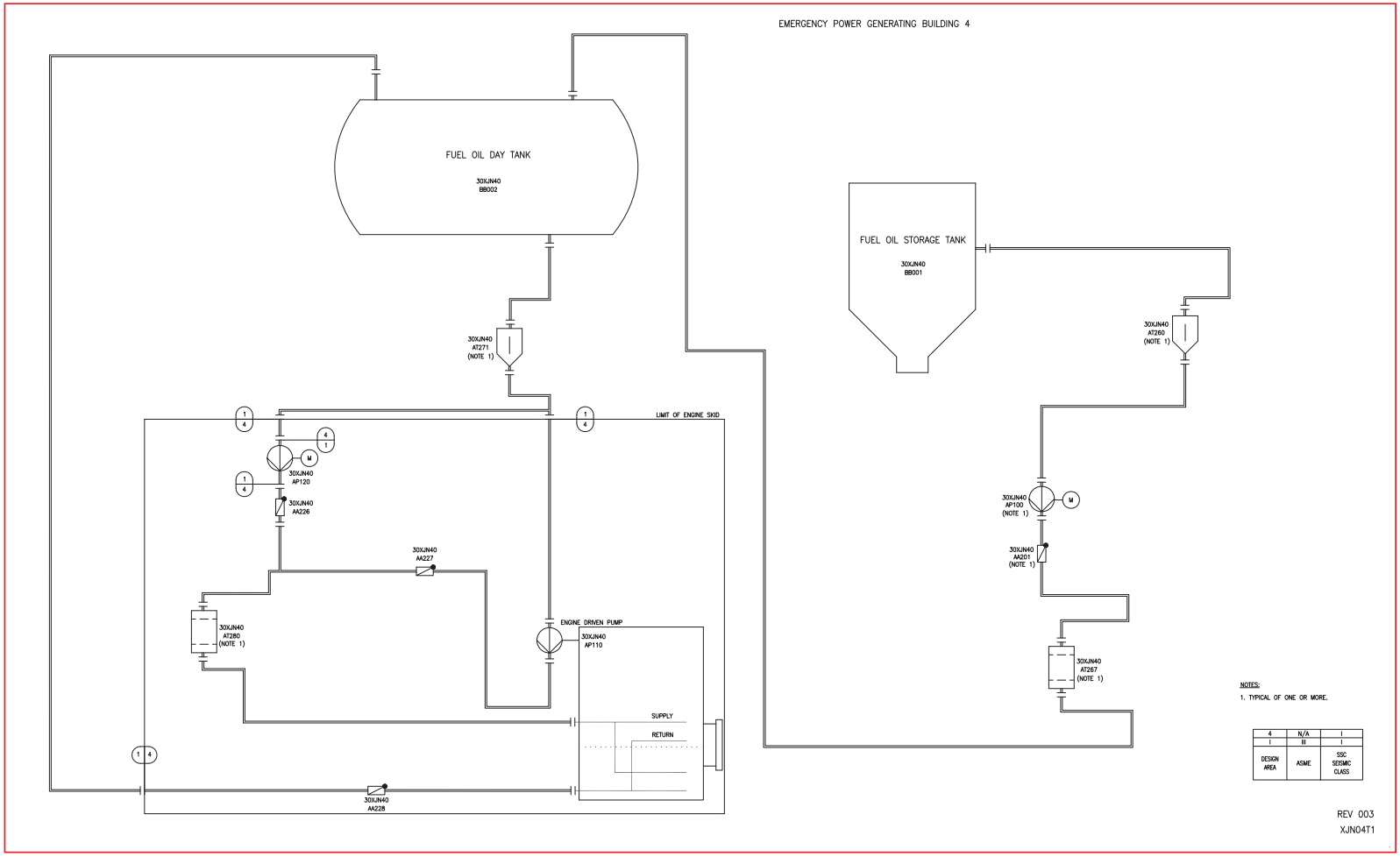


Figure 2.5.4-2—Emergency Diesel Generator Lubricating Oil System Functional Arrangement
Sheet 1 of 4

09.05.04-24

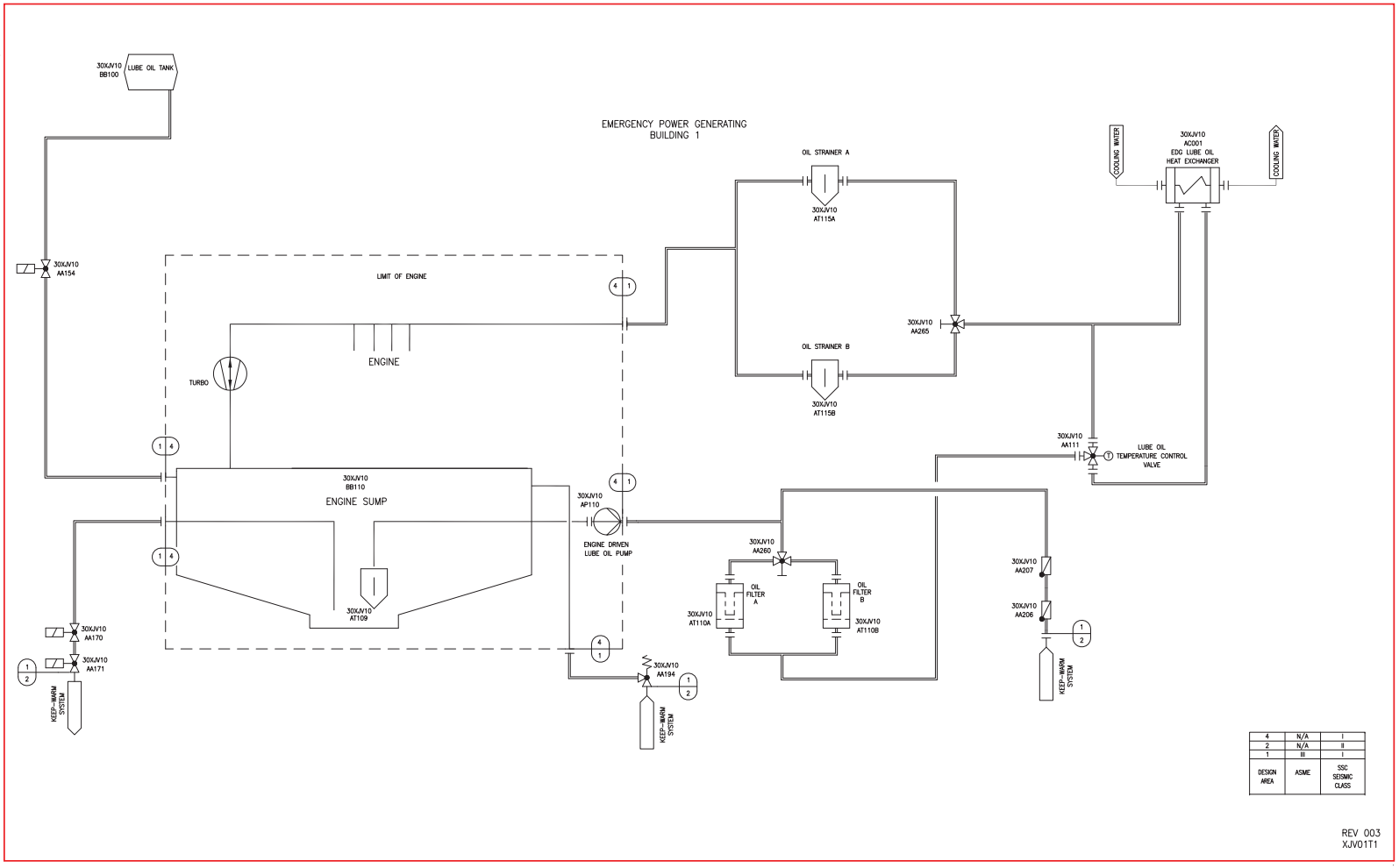


Figure 2.5.4-2—Emergency Diesel Generator Lubricating Oil System Functional Arrangement
Sheet 2 of 4

09.05.04-24

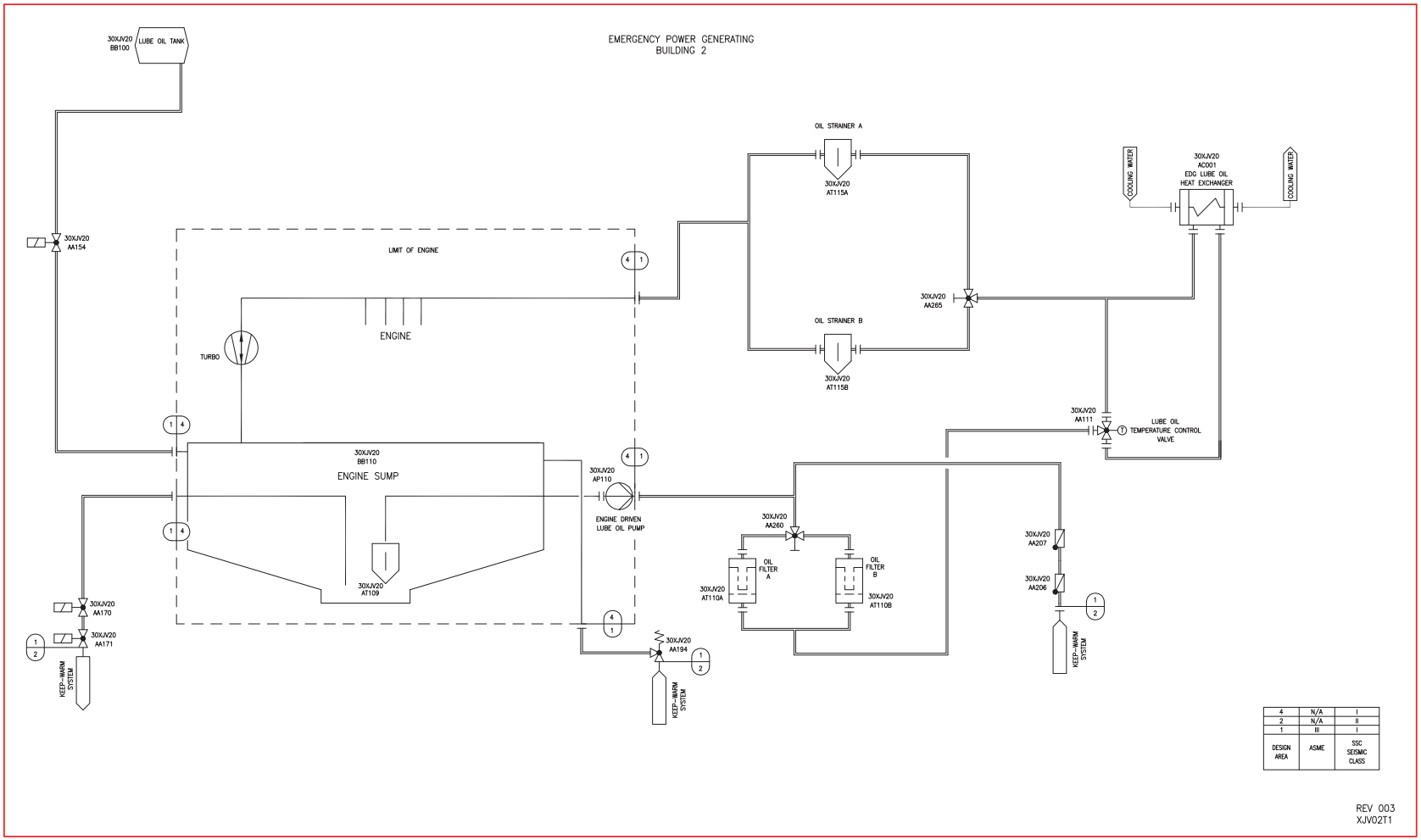


Figure 2.5.4-2—Emergency Diesel Generator Lubricating Oil System Functional Arrangement
Sheet 3 of 4

09.05.04-24

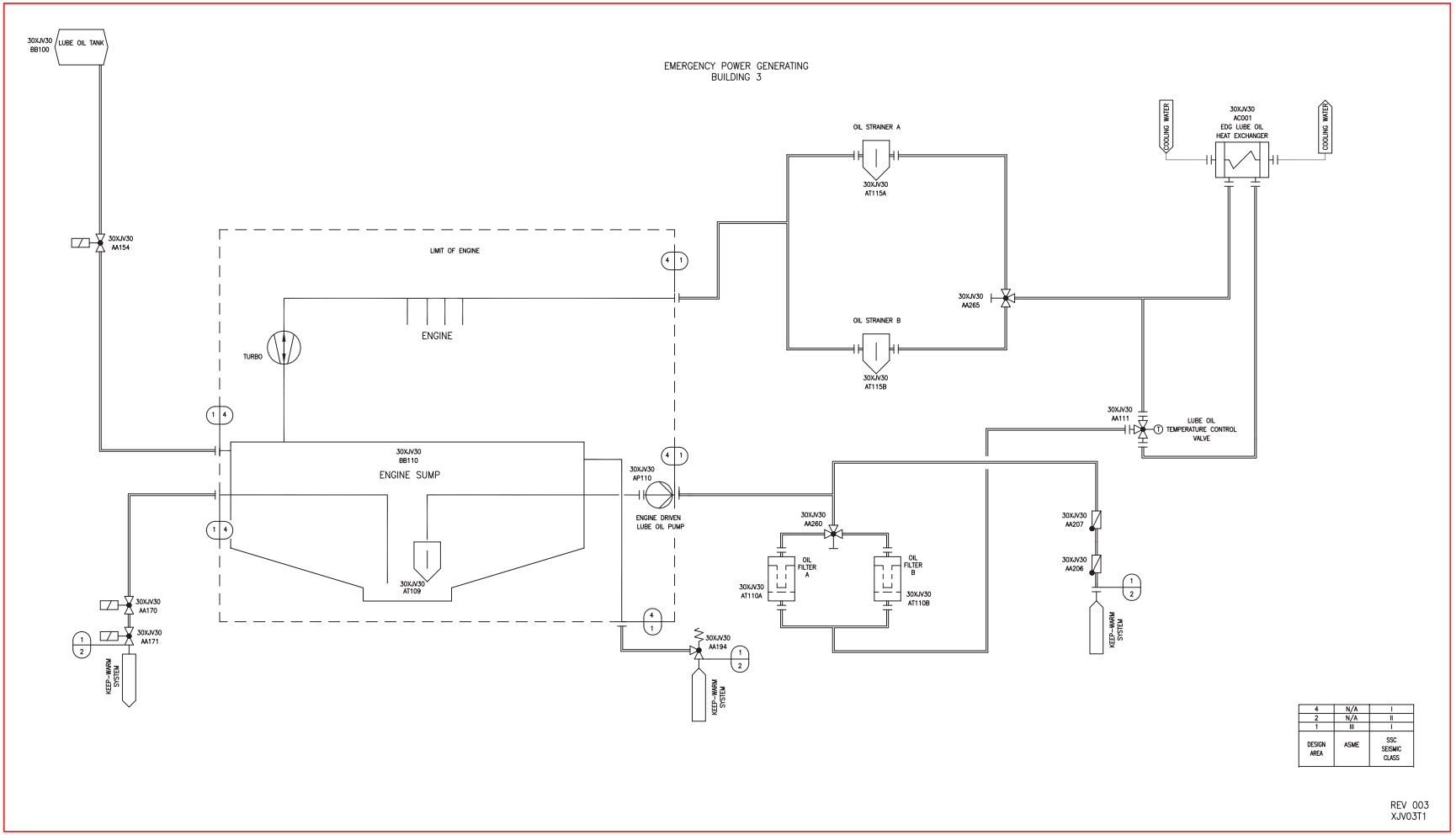
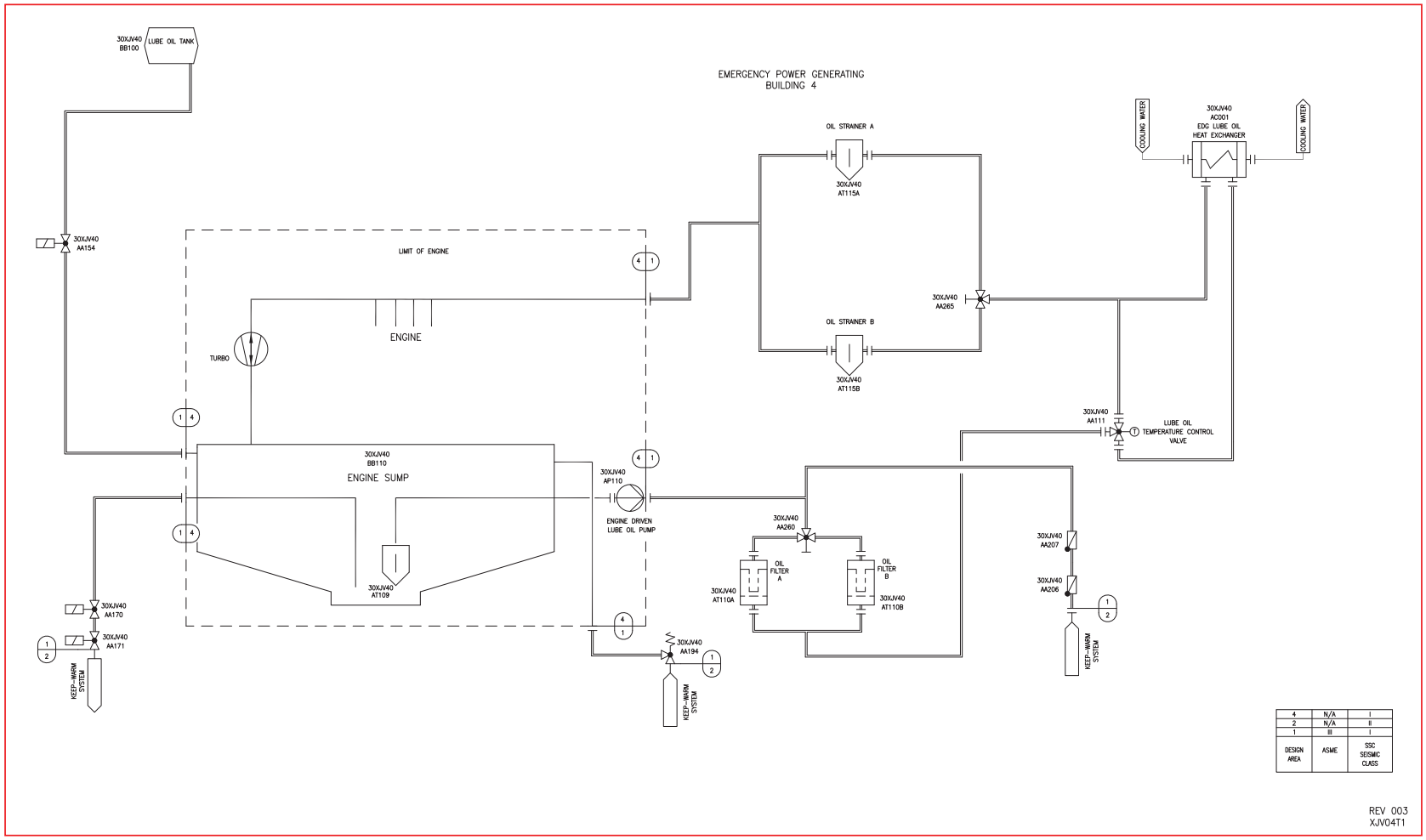


Figure 2.5.4-2—Emergency Diesel Generator Lubricating Oil System Functional Arrangement
Sheet 4 of 4

09.05.04-24



09.05.04-24

Figure 2.5.4-3—Emergency Diesel Generator Air Intake and Exhaust System Functional Arrangement
Sheet 1 of 4

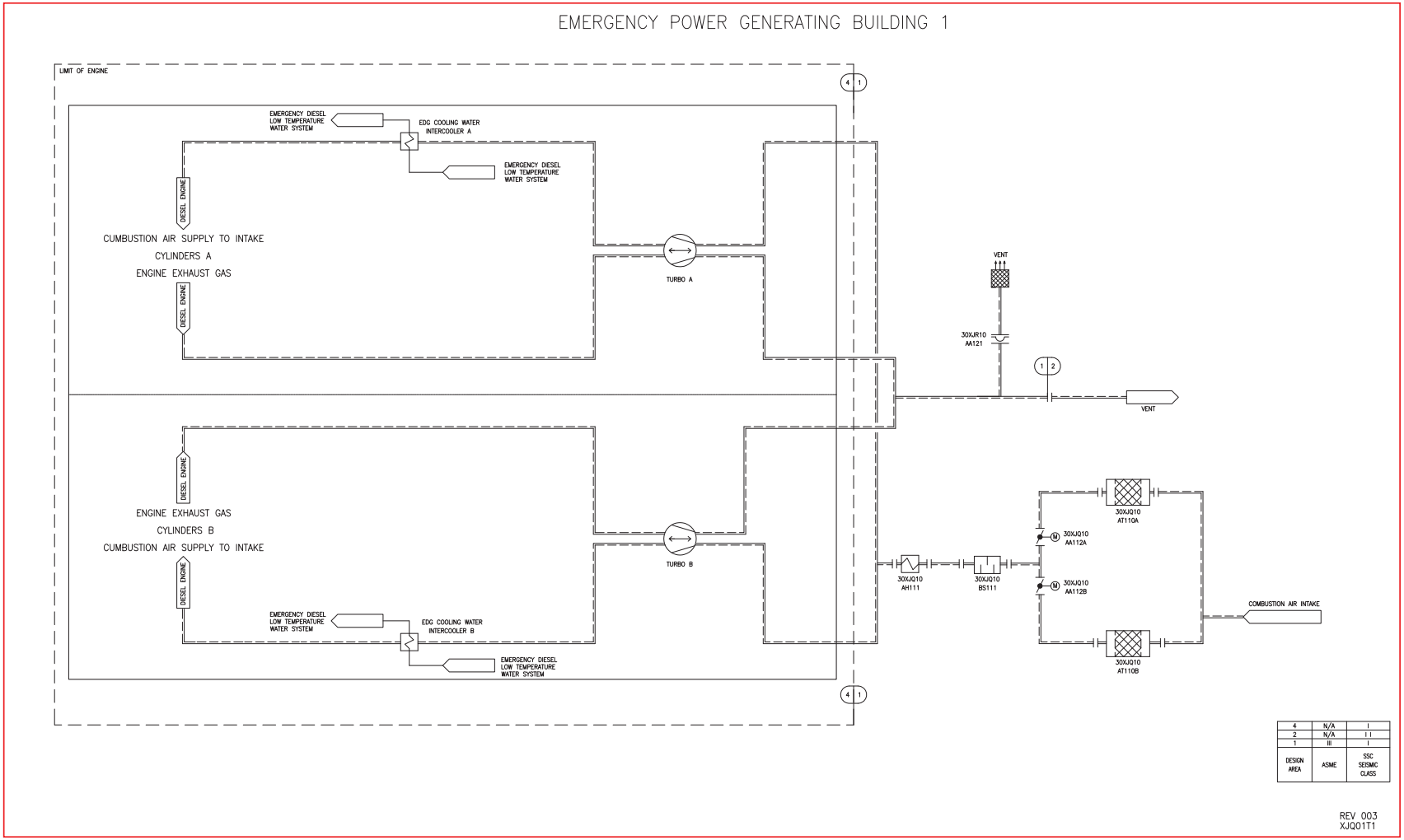


Figure 2.5.4-3—Emergency Diesel Generator Air Intake and Exhaust System Functional Arrangement
Sheet 2 of 4

09.05.04-24

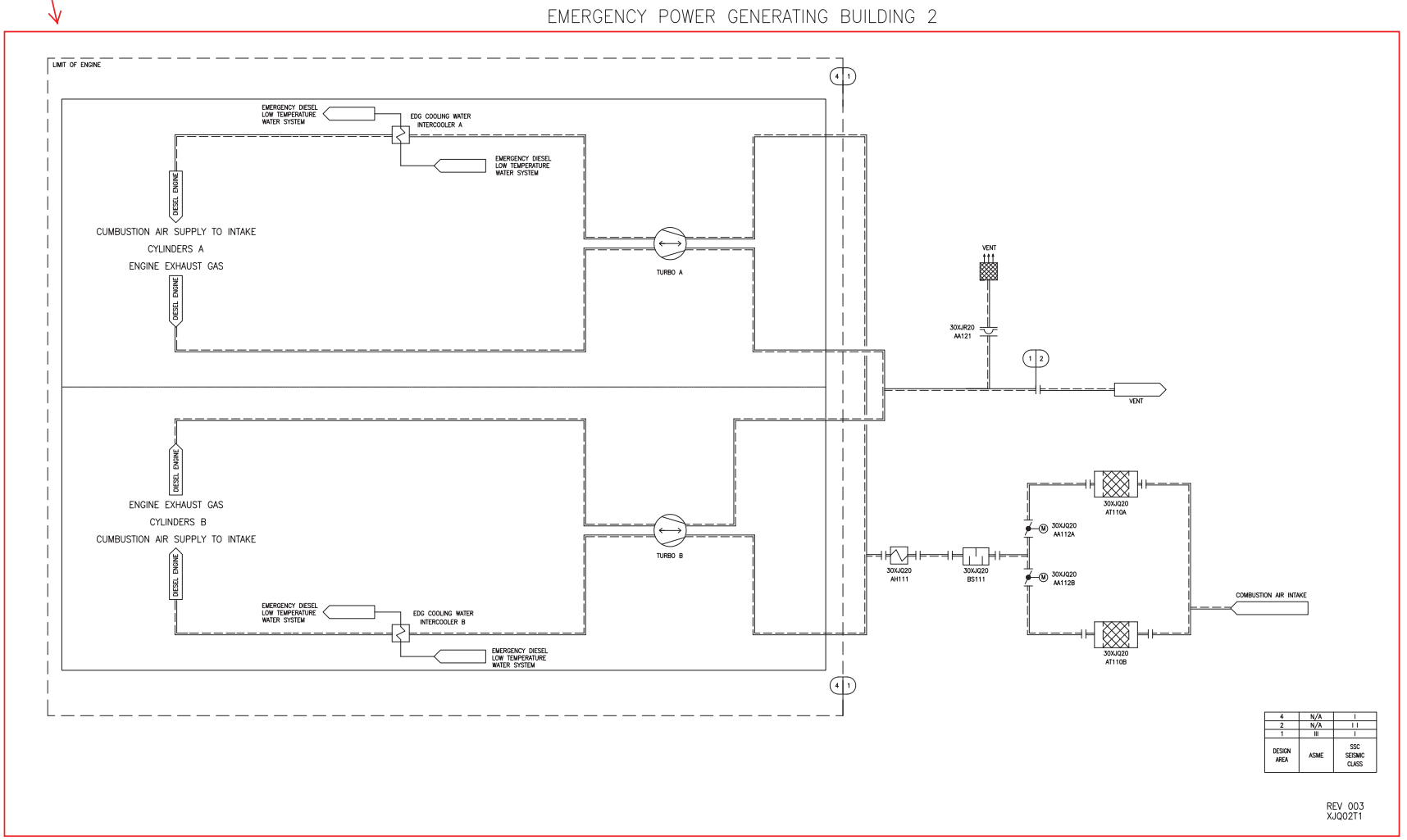


Figure 2.5.4-3—Emergency Diesel Generator Air Intake and Exhaust System Functional Arrangement
Sheet 3 of 4

09.05.04-24

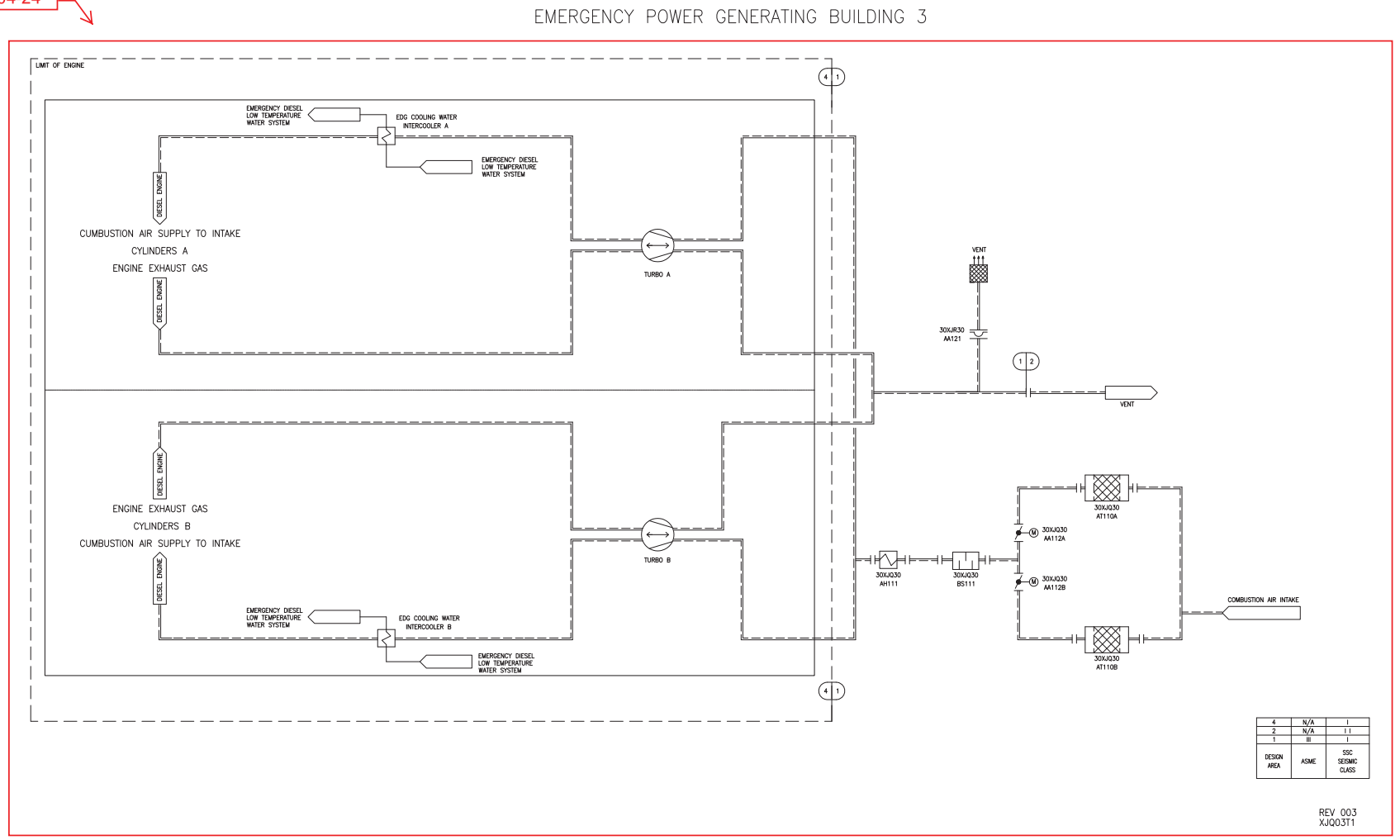
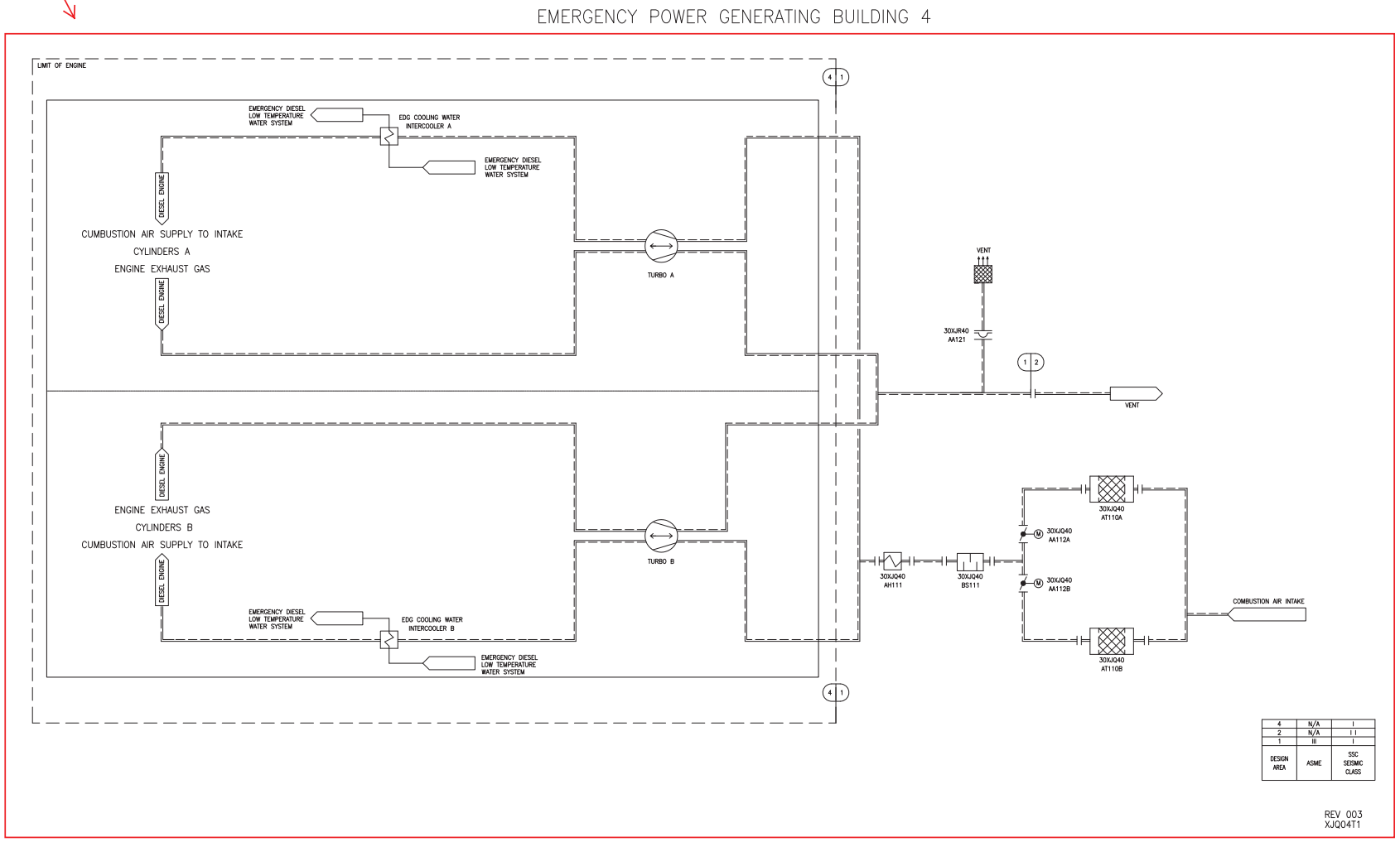


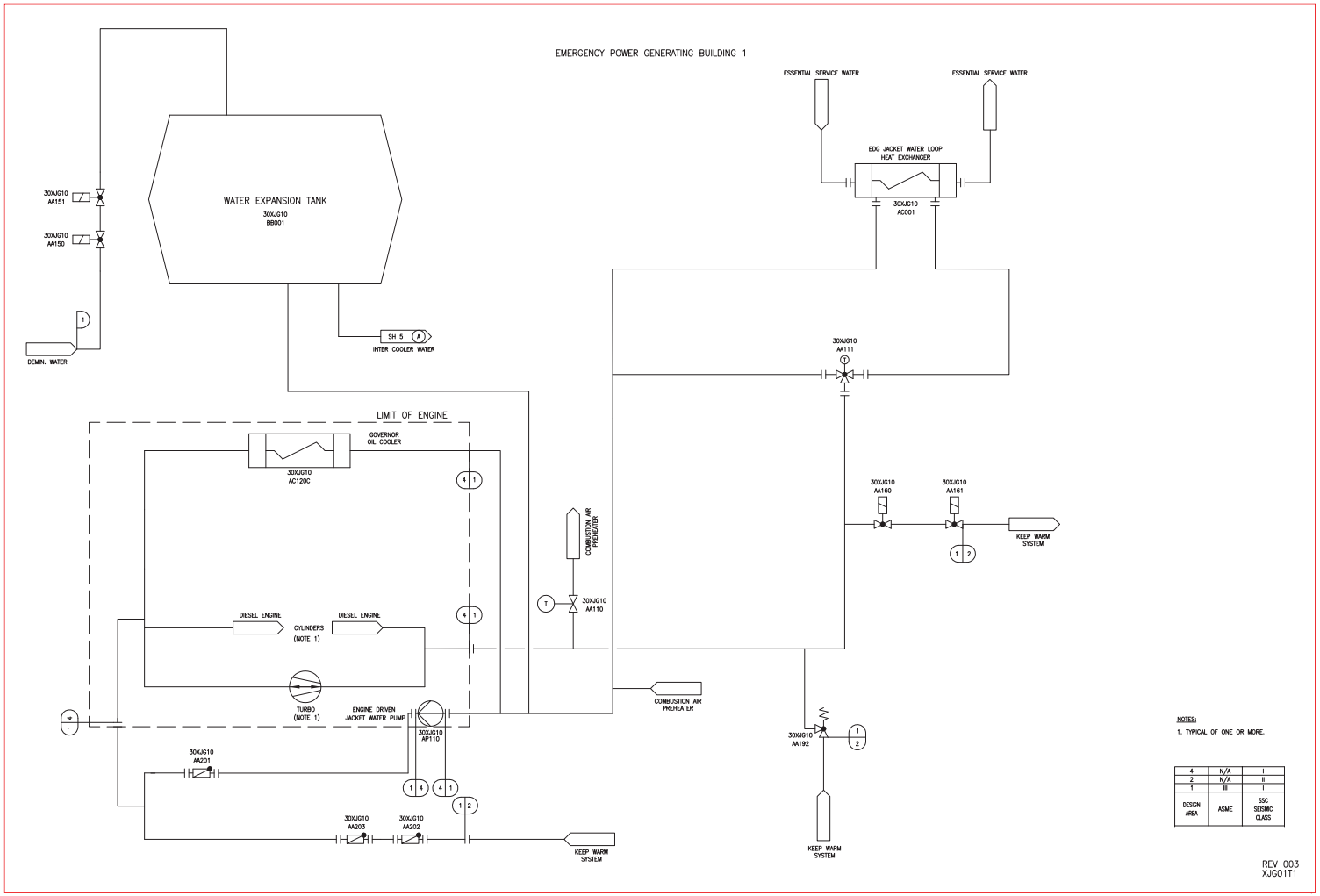
Figure 2.5.4-3—Emergency Diesel Generator Air Intake and Exhaust System Functional Arrangement
Sheet 4 of 4

09.05.04-24



09.05.04-24

Figure 2.5.4-4—Emergency Diesel Generator Cooling Water System Functional Arrangement
Sheet 1 of 8



09.05.04-24

Figure 2.5.4-4—Emergency Diesel Generator Cooling Water System Functional Arrangement
Sheet 2 of 8

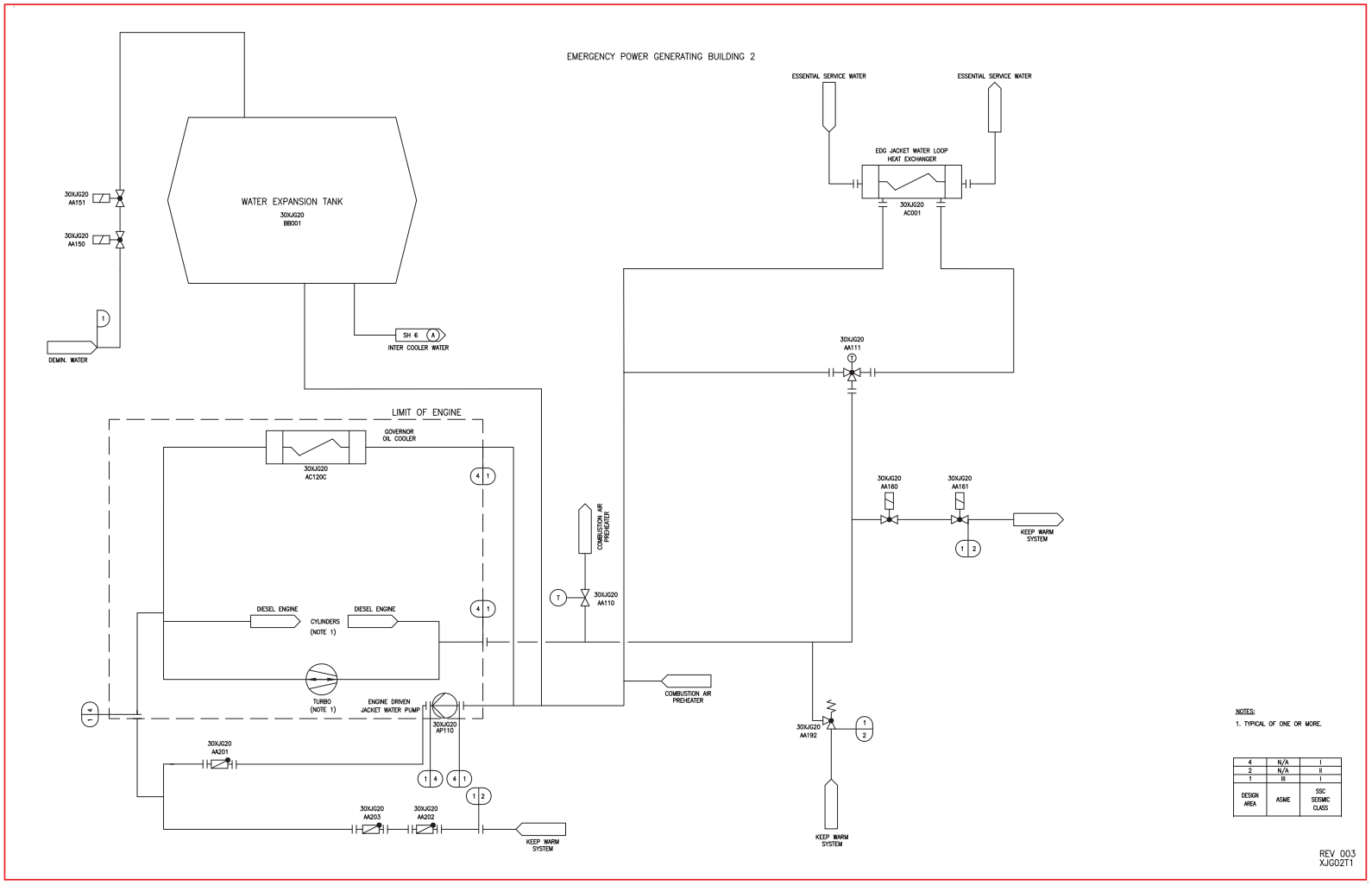
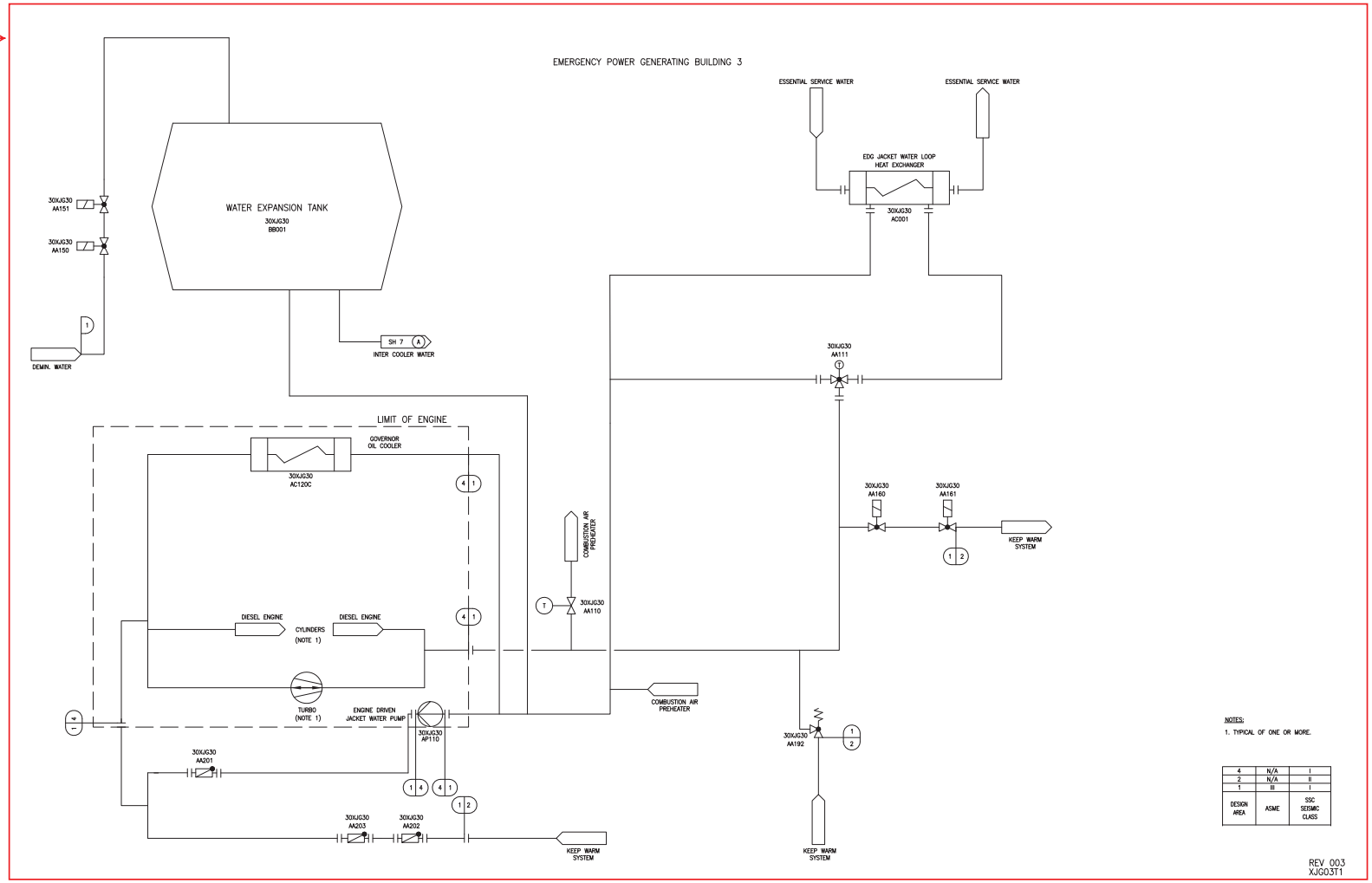


Figure 2.5.4-4—Emergency Diesel Generator Cooling Water System Functional Arrangement
Sheet 3 of 8

09.05.04-24



09.05.04-24

Figure 2.5.4-4—Emergency Diesel Generator Cooling Water System Functional Arrangement
Sheet 4 of 8

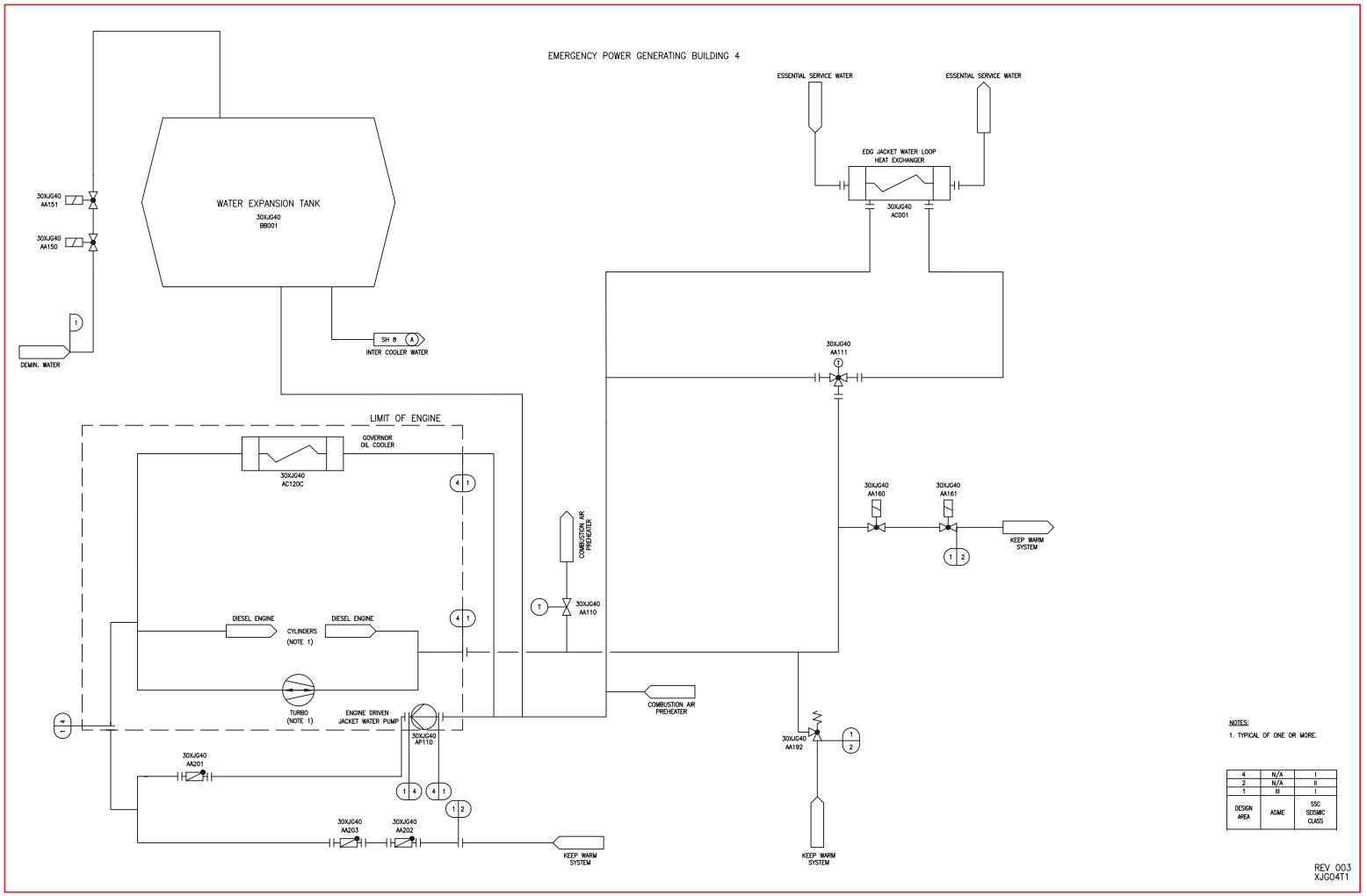


Figure 2.5.4-5—Emergency Diesel Generator Starting Air System Functional Arrangement
Sheet 1 of 4

09.05.04-24

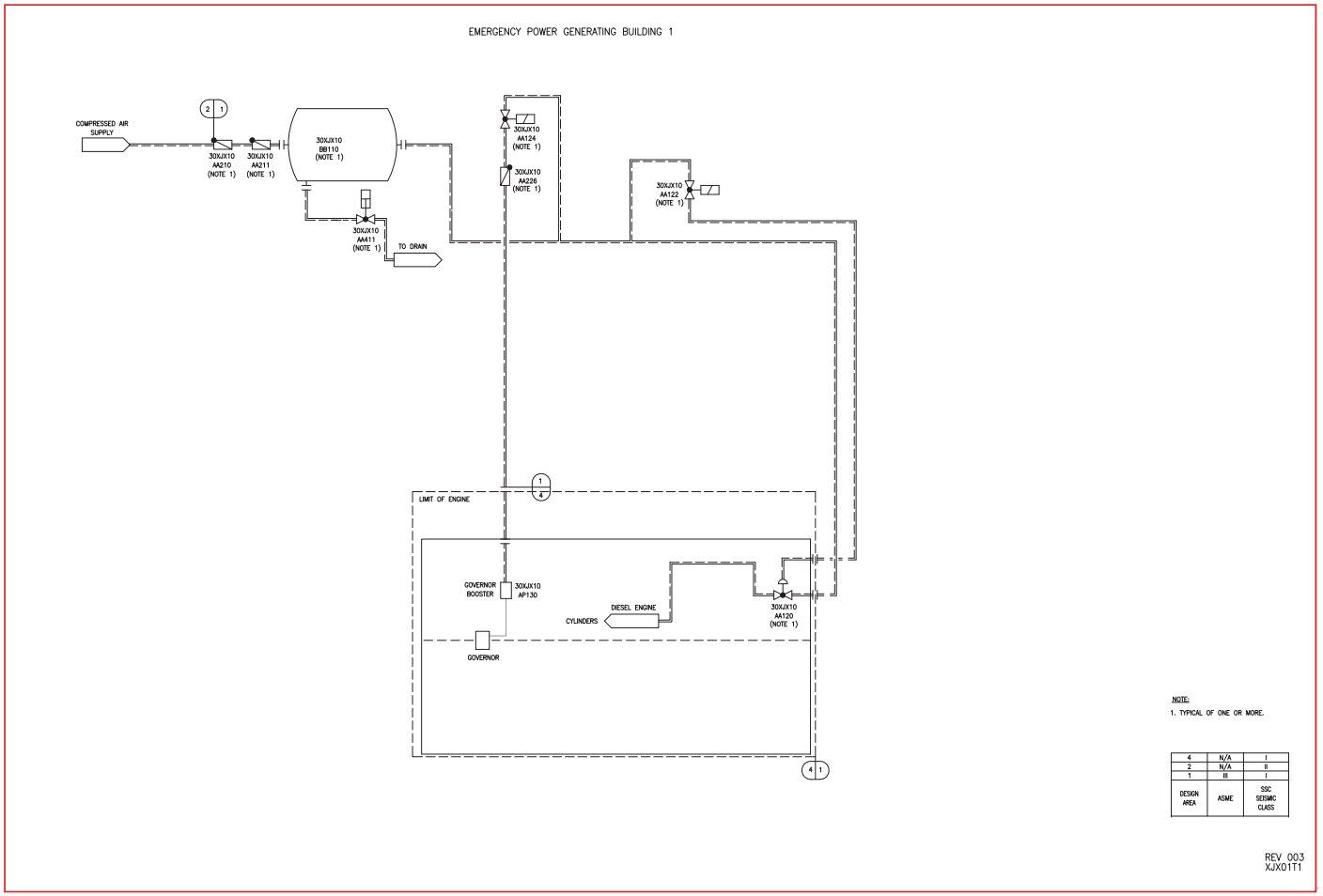
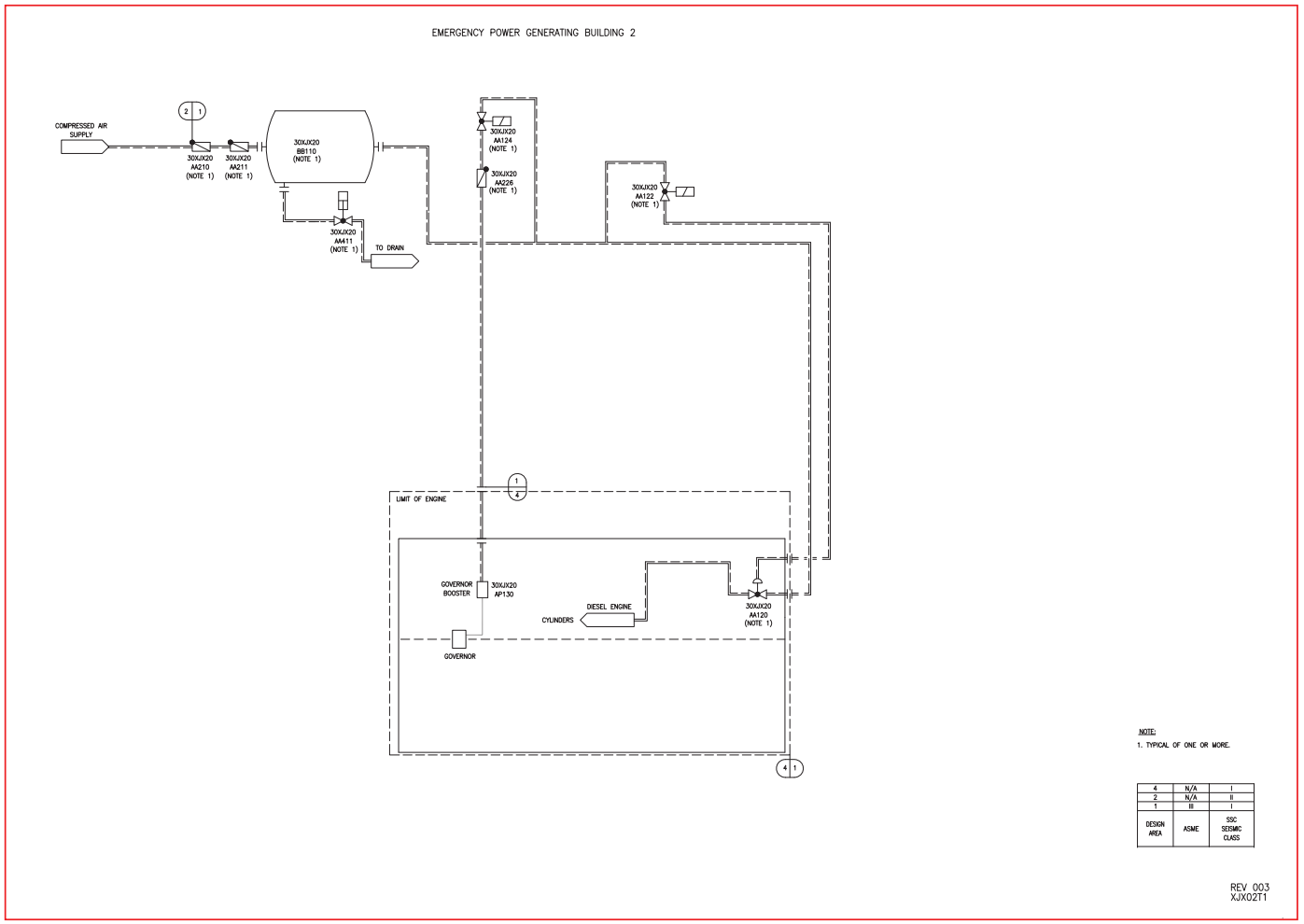


Figure 2.5.4-5—Emergency Diesel Generator Starting Air System Functional Arrangement
Sheet 2 of 4

09.05.04-24



09.05.04-24

Figure 2.5.4-5—Emergency Diesel Generator Starting Air System Functional Arrangement
Sheet 3 of 4

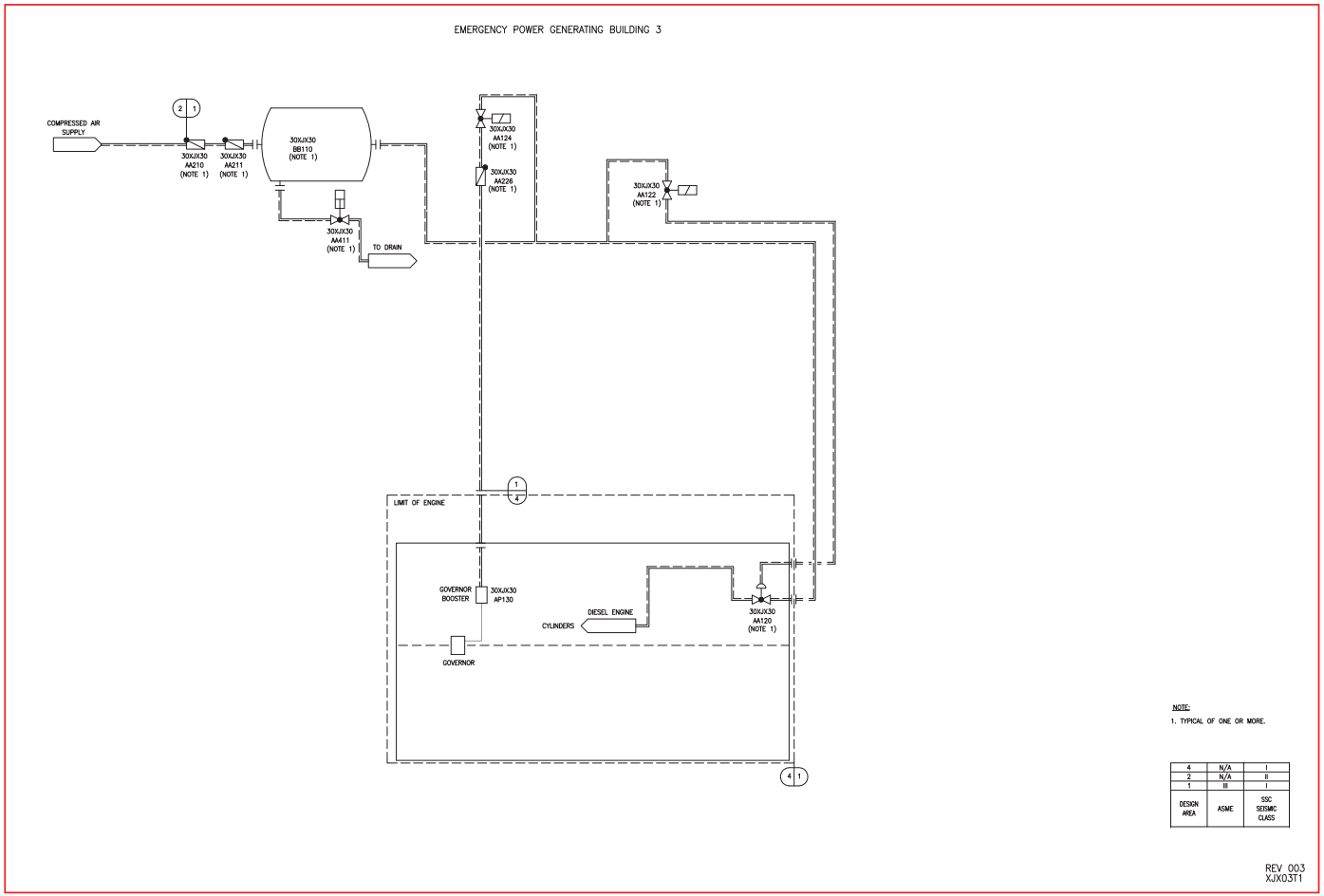
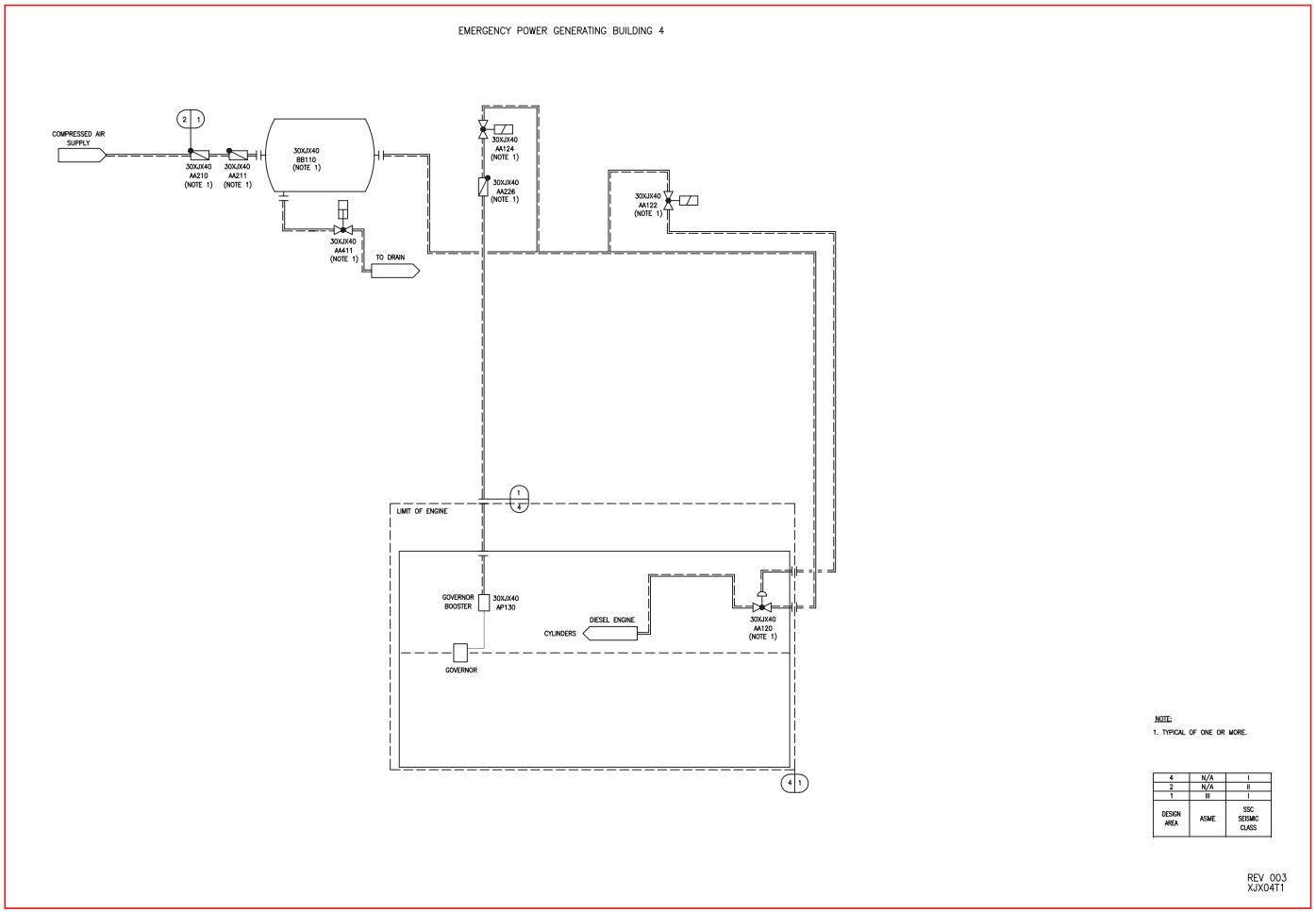


Figure 2.5.4-5—Emergency Diesel Generator Starting Air System Functional Arrangement
Sheet 4 of 4

09.05.04-24



Next File

The external fill locations are designed to meet local, state, and federal regulations for spill protection. The operational structures, systems, and components (SSC) of the system inside the EPGB are located above ground. Leakage in the system will be identified during diesel surveillance runs or routine operator rounds. In the event of a large leak during unattended periods, the fuel tanks are equipped with low level alarms and the fuel drains to the local building sump. The local building sump is equipped with a level alarm that notifies operations of abnormal conditions. Supply and branch lines have isolation valves that can be operated to minimize the impact of leaks. SSC not required for EDG operation can be isolated to maintain EDG operability.

9.5.4.2.2 Component Description

The major components of the DGFOSTS are described in the following paragraphs. The safety classification and seismic design classification for these components, along with their design and fabrication code, are provided in Table 3.2.2-1.

~~The~~ Table 3.2.2-1 provides the seismic design and other design classifications for components in the DGFOSTS. ~~is designed and constructed in accordance with quality group C and Seismic Category I.~~

Main Fuel Oil Storage Tank

One vertical cylindrical fuel oil storage tank is provided for each EDG. The tanks are located adjacent to their respective divisions in separate rooms located at each end of the EPGBs. This separation provides a missile barrier, serves as a spill reservoir, and provides a three hour firewall between the fuel oil tanks and the diesel engine room. The capacity of each tank is based on the fuel consumption by one diesel engine for operation at the continuous rating for seven days in accordance with ANSI/ANS-59.51 (Reference 3)~~, plus an additional ten percent for surveillance testing~~. The tank is vented, via a flame arrester, to the atmosphere outside the EPGB at a location above the tank connections. Each fuel oil storage tank has two vent paths leading to the outside of the EPGB. The vents are located on the exterior of the upper level of the EPGB, and the locations are separated from each other by line of sight and distance.

09.05.04-25

The tank has a manway that allows access for cleaning bottom sediment and inspecting the tank lining. The tank bottom is constructed so that a low point sump exists for collection and drainage of any water or sediment that may be present. Additionally, the system incorporates the pumps, the pump discharge piping, and conduits.

Fill lines and transfer pump suction lines are located above the sump to preclude disturbance of sediment or water which might lead to the introduction of contaminants into the fuel oil system. The fuel oil storage tanks are equipped with sample and drain lines for sampling the fuel oil and draining the tanks. The storage tanks are equipped with electronic measurement instrumentation that provides local