ArevaEPRDCPEm Resource

From: WILLIFORD Dennis (AREVA) [Dennis.Williford@areva.com]
Sent: Tuesday, January 29, 2013 2:55 PM
To: Snyder, Amy
Cc: Hearn, Peter; DELANO Karen (AREVA); LEIGHLITER John (AREVA); ROMINE Judy (AREVA); RYAN Tom (AREVA); TOLLEY Tracey (AREVA); VANCE Brian (AREVA); WELLS Russell (AREVA); WILLS Tiffany (AREVA); KOWALSKI David (AREVA); HARRINGTON James (AREVA)
Subject: Advanced Response to U.S. EPR Design Certification Application RAI No. 525 (6194, 6154), FSAR Ch. 9, Questions 09.01.04-27 and 09.01.04-29
Attachments: RAI 525 Advanced Response Questions 09.01.04-27 & -29 US EPR DC.pdf

Importance: High

Amy,

Attached is an Advanced Response to RAI 525, Questions 09.01.04-27 and 09.01.04-29 in advance of the final response date of March 29, 2013.

To keep our commitment to send a final response to this question by the commitment date, we need to receive all NRC staff feedback and comments no later than **March 15, 2013**.

Please let me know if NRC staff has any questions or if this response can be sent as final.

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, January 08, 2013 3:40 PM
To: Amy.Snyder@nrc.gov
Cc: peter.hearn@nrc.gov; DELANO Karen (RS/NB); LEIGHLITER John (RS/NB); ROMINE Judy (RS/NB); RYAN Tom (RS/NB); WILLS Tiffany (CORP/QP); KOWALSKI David (RS/NB)
Subject: Response to U.S. EPR Design Certification Application RAI No. 525 (6194, 6154), FSAR Ch. 9, Supplement 5
Importance: High

Amy,

AREVA NP Inc. provided a schedule for technically correct and complete responses to the eighteen questions in RAI No. 525 on January 25, 2012. Supplement 1 response was sent on February 24, 2012 to provide a revised schedule. Supplement 2 response was sent on March 16, 2012 to provide a response to Question 09.01.04-28. Supplement 3 response was sent on May 30, 2012 to provide a revised final response to

Question 09.01.04-28. Supplement 4 response was sent on December 14, 2012 to provide a revised schedule for 6 of the remaining 17 questions.

The schedule for a technically correct and complete response to 11 of the remaining 17 questions has been revised as provided below.

Question #	Response Date
RAI 525 — 09.01.04-21	February 28, 2013
RAI 525 — 09.01.04-22	**May 15, 2013**
RAI 525 — 09.01.04-23	February 28, 2013
RAI 525 — 09.01.04-24	**May 15, 2013**
RAI 525 — 09.01.04-25	**May 15, 2013**
RAI 525 — 09.01.04-26	**May 15, 2013**
RAI 525 — 09.01.04-27	**March 29, 2013**
RAI 525 — 09.01.04-29	**March 29, 2013**
RAI 525 — 09.01.04-30	**May 15, 2013**
RAI 525 — 09.01.04-31	**May 24, 2013**
RAI 525 — 09.01.04-32	February 28, 2013
RAI 525 — 09.01.04-33	**May 24, 2013**
RAI 525 — 09.01.04-34	February 28, 2013
RAI 525 — 09.01.04-35	February 28, 2013
RAI 525 — 09.01.04-36	**May 24, 2013**
RAI 525 — 09.01.04-37	**May 24, 2013**
RAI 525 — 09.01.04-38	February 28, 2013

Sincerely,

Dennis Williford, P.E.
U.S. EPR Design Certification Licensing Manager
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7207 IBM Drive, Mail Code CLT 2B
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Email: Dennis.Williford@areva.com

From: WILLIFORD Dennis (RS/NB)
Sent: Friday, December 14, 2012 4:58 PM
To: Amy.Snyder@nrc.gov
Cc: BENNETT Kathy (RS/NB); DELANO Karen (RS/NB); LEIGHLITER John (RS/NB); ROMINE Judy (RS/NB); RYAN Tom (RS/NB); peter.hearn@nrc.gov; KOWALSKI David (RS/NB)
Subject: Response to U.S. EPR Design Certification Application RAI No. 525 (6194, 6154), FSAR Ch. 9, Supplement 4
Importance: High

Amy,

AREVA NP Inc. provided a schedule for technically correct and complete responses to the eighteen questions in RAI No. 525 on January 25, 2012. Supplement 1 response was sent on February 24, 2012 to provide a

revised schedule. Supplement 2 response was sent on March 16, 2012 to provide a response to Question 09.01.04-28. Supplement 3 response was sent on May 30, 2012 to provide a revised final response to Question 09.01.04-28.

The schedule for a technically correct and complete response to 6 of the remaining 17 questions has been revised as provided below.

Question #	Response Date
RAI 525 — 09.01.04-21	**February 28, 2013**
RAI 525 — 09.01.04-22	June 28, 2013
RAI 525 — 09.01.04-23	**February 28, 2013**
RAI 525 — 09.01.04-24	June 28, 2013
RAI 525 — 09.01.04-25	June 28, 2013
RAI 525 — 09.01.04-26	June 28, 2013
RAI 525 — 09.01.04-27	June 28, 2013
RAI 525 — 09.01.04-29	June 28, 2013
RAI 525 — 09.01.04-30	June 28, 2013
RAI 525 — 09.01.04-31	June 28, 2013
RAI 525 — 09.01.04-32	**February 28, 2013**
RAI 525 — 09.01.04-33	June 28, 2013
RAI 525 — 09.01.04-34	**February 28, 2013**
RAI 525 — 09.01.04-35	**February 28, 2013**
RAI 525 — 09.01.04-36	June 28, 2013
RAI 525 — 09.01.04-37	June 28, 2013
RAI 525 — 09.01.04-38	**February 28, 2013**

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, May 30, 2012 11:38 AM
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. 525 (6194, 6154), FSAR Ch. 9, Supplement 3
Importance: High

Getachew,

AREVA NP Inc. provided a schedule for technically correct and complete responses to the eighteen questions in RAI No. 525 on January 25, 2012. Supplement 1 response to RAI No. 525 was sent on February 24, 2012 to provide a revised schedule. Supplement 2 response to RAI No. 525 was sent on March 16, 2012 to provide a complete final response to Question 09.01.04-28.

The attached file, "RAI 525 Supplement 3 Response US EPR DC.pdf" provides a technically correct and complete revised final response to Question 09.01.04-28, which supersedes in its entirety the response to this question provided in Supplement 2.

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 525 Question 09.01.04-28.

The following table indicates the respective pages in the response document, "RAI 525 Supplement 3 Response US EPR DC.pdf," that contain AREVA NP's response to the subject question.

Question #	Start Page	End Page
RAI 525 — 09.01.04-28	2	2

The schedule for a technically correct and complete response to the remaining 17 questions has not changed as provided below.

Question #	Response Date
RAI 525 — 09.01.04-21	June 28, 2013
RAI 525 — 09.01.04-22	June 28, 2013
RAI 525 — 09.01.04-23	June 28, 2013
RAI 525 — 09.01.04-24	June 28, 2013
RAI 525 — 09.01.04-25	June 28, 2013
RAI 525 — 09.01.04-26	June 28, 2013
RAI 525 — 09.01.04-27	June 28, 2013
RAI 525 — 09.01.04-29	June 28, 2013
RAI 525 — 09.01.04-30	June 28, 2013
RAI 525 — 09.01.04-31	June 28, 2013
RAI 525 — 09.01.04-32	June 28, 2013
RAI 525 — 09.01.04-33	June 28, 2013
RAI 525 — 09.01.04-34	June 28, 2013
RAI 525 — 09.01.04-35	June 28, 2013
RAI 525 — 09.01.04-36	June 28, 2013
RAI 525 — 09.01.04-37	June 28, 2013
RAI 525 — 09.01.04-38	June 28, 2013

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, March 16, 2012 3:05 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. 525 (6194, 6154), FSAR Ch. 9, Supplement 2

Getachew,

AREVA NP Inc. provided a schedule for technically correct and complete responses to the eighteen questions in RAI No. 525 on January 25, 2012. Supplement 1 response to RAI No. 525 was sent on February 24, 2012 to provide a revised schedule.

The attached file, "RAI 525 Supplement 2 Response US EPR DC.pdf" provides a technically correct and complete final response to Question 09.01.04-28.

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 525 Question 09.01.04-28.

The following table indicates the respective pages in the response document, "RAI 525 Supplement 2 Response US EPR DC.pdf," that contain AREVA NP's response to the subject question.

Question #	Start Page	End Page
RAI 525 — 09.01.04-28	2	2

The schedule for technically correct and complete responses to the remaining seventeen questions has not changed and is provided below.

Question #	Response Date
RAI 525 — 09.01.04-21	June 28, 2013
RAI 525 — 09.01.04-22	June 28, 2013
RAI 525 — 09.01.04-23	June 28, 2013
RAI 525 — 09.01.04-24	June 28, 2013
RAI 525 — 09.01.04-25	June 28, 2013
RAI 525 — 09.01.04-26	June 28, 2013
RAI 525 — 09.01.04-27	June 28, 2013
RAI 525 — 09.01.04-29	June 28, 2013
RAI 525 — 09.01.04-30	June 28, 2013
RAI 525 — 09.01.04-31	June 28, 2013
RAI 525 — 09.01.04-32	June 28, 2013
RAI 525 — 09.01.04-33	June 28, 2013
RAI 525 — 09.01.04-34	June 28, 2013
RAI 525 — 09.01.04-35	June 28, 2013
RAI 525 — 09.01.04-36	June 28, 2013

RAI 525 — 09.01.04-37	June 28, 2013
RAI 525 — 09.01.04-38	June 28, 2013

Sincerely,

Dennis Williford, P.E.
U.S. EPR Design Certification Licensing Manager
AREVA NP Inc.
7207 IBM Drive, Mail Code CLT 2B
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From: WILLIFORD Dennis (RS/NB)
Sent: Friday, February 24, 2012 5:21 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. 525 (6194, 6154), FSAR Ch. 9, Supplement 1

Getachew,

AREVA NP Inc. provided a schedule for technically correct and complete responses to the eighteen questions in RAI No. 525 on January 25, 2012.

The schedule for technically correct and complete responses to the eighteen questions has been changed as provided below. This schedule was transmitted to the NRC in AREVA NP letter NRC:12:008 dated February 21, 2012.

Question #	Response Date
RAI 525 — 09.01.04-21	**June 28, 2013**
RAI 525 — 09.01.04-22	**June 28, 2013**
RAI 525 — 09.01.04-23	**June 28, 2013**
RAI 525 — 09.01.04-24	**June 28, 2013**
RAI 525 — 09.01.04-25	**June 28, 2013**
RAI 525 — 09.01.04-26	**June 28, 2013**
RAI 525 — 09.01.04-27	**June 28, 2013**
RAI 525 — 09.01.04-28	**June 28, 2013**
RAI 525 — 09.01.04-29	**June 28, 2013**
RAI 525 — 09.01.04-30	**June 28, 2013**
RAI 525 — 09.01.04-31	**June 28, 2013**
RAI 525 — 09.01.04-32	**June 28, 2013**
RAI 525 — 09.01.04-33	**June 28, 2013**
RAI 525 — 09.01.04-34	**June 28, 2013**
RAI 525 — 09.01.04-35	**June 28, 2013**
RAI 525 — 09.01.04-36	**June 28, 2013**
RAI 525 — 09.01.04-37	**June 28, 2013**
RAI 525 — 09.01.04-38	**June 28, 2013**

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, January 25, 2012 4:06 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); Michael.Miernicki@nrc.gov; peter.hearn@nrc.gov
Subject: Response to U.S. EPR Design Certification Application RAI No. 525 (6194, 6154), FSAR Ch. 9

Getachew,

Attached please find AREVA NP Inc.'s response to the subject request for additional information (RAI). The attached file, "RAI 525 Response US EPR DC.pdf," provides a preliminary schedule since a technically correct and complete response to these eighteen questions cannot be provided at this time.

The following table indicates the respective pages in the response document, "RAI 525 Response US EPR DC.pdf," that contain AREVA NP's response to the subject questions.

Question #	Start Page	End Page
RAI 525 — 09.01.04-21	2	2
RAI 525 — 09.01.04-22	3	3
RAI 525 — 09.01.04-23	4	4
RAI 525 — 09.01.04-24	5	5
RAI 525 — 09.01.04-25	6	6
RAI 525 — 09.01.04-26	7	7
RAI 525 — 09.01.04-27	8	8
RAI 525 — 09.01.04-28	9	9
RAI 525 — 09.01.04-29	10	10
RAI 525 — 09.01.04-30	11	11
RAI 525 — 09.01.04-31	12	12
RAI 525 — 09.01.04-32	13	13
RAI 525 — 09.01.04-33	14	14
RAI 525 — 09.01.04-34	15	15
RAI 525 — 09.01.04-35	16	16
RAI 525 — 09.01.04-36	17	17
RAI 525 — 09.01.04-37	18	18
RAI 525 — 09.01.04-38	19	19

A preliminary schedule for technically correct and complete responses to these questions is provided below. This schedule is being reevaluated and a new supplement with a revised schedule will be transmitted by February 21, 2012.

Question #	Response Date
RAI 525 — 09.01.04-21	February 21, 2012
RAI 525 — 09.01.04-22	February 21, 2012
RAI 525 — 09.01.04-23	February 21, 2012
RAI 525 — 09.01.04-24	February 21, 2012
RAI 525 — 09.01.04-25	February 21, 2012
RAI 525 — 09.01.04-26	February 21, 2012
RAI 525 — 09.01.04-27	February 21, 2012
RAI 525 — 09.01.04-28	February 21, 2012
RAI 525 — 09.01.04-29	February 21, 2012
RAI 525 — 09.01.04-30	February 21, 2012
RAI 525 — 09.01.04-31	February 21, 2012
RAI 525 — 09.01.04-32	February 21, 2012
RAI 525 — 09.01.04-33	February 21, 2012
RAI 525 — 09.01.04-34	February 21, 2012
RAI 525 — 09.01.04-35	February 21, 2012
RAI 525 — 09.01.04-36	February 21, 2012
RAI 525 — 09.01.04-37	February 21, 2012
RAI 525 — 09.01.04-38	February 21, 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: Tesfaye, Getachew [mailto:Getachew.Tesfaye@nrc.gov]
Sent: Monday, December 19, 2011 4:19 PM
To: ZZ-DL-A-USEPR-DL
Cc: Curran, Gordon; McKenna, Eileen; Xu, Jim; Thomas, Brian; Hearn, Peter; Segala, John; ArevaEPRDCPEm Resource
Subject: U.S. EPR Design Certification Application RAI No. 525 (6194, 6154), FSAR Ch. 9

Attached please find the subject requests for additional information (RAI). A draft of the RAI was provided to you on November 11, 2011, and discussed with your staff on December 2, 2011. Draft RAI Questions 09.01.04-24, 09.01.04-31, and 09.01.04-33 were modified as a result of that discussion. The schedule we have established for review of your application assumes technically correct and complete responses within 30 days of receipt of RAIs, excluding the time period of **December 24, 2011 thru January 2, 2012, to account for the holiday season** as discussed with AREVA NP Inc. For any RAIs that cannot be answered **within 40**

days, it is expected that a date for receipt of this information will be provided to the staff within the 40-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: 4200

Mail Envelope Properties (554210743EFE354B8D5741BEB695E6560BDD13)

Subject: Advanced Response to U.S. EPR Design Certification Application RAI No. 525 (6194, 6154), FSAR Ch. 9, Questions 09.01.04-27 and 09.01.04-29
Sent Date: 1/29/2013 2:54:57 PM
Received Date: 1/29/2013 2:55:17 PM
From: WILLIFORD Dennis (AREVA)

Created By: Dennis.Williford@areva.com

Recipients:
"Hearn, Peter" <Peter.Hearn@nrc.gov>
Tracking Status: None
"DELANO Karen (AREVA)" <Karen.Delano@areva.com>
Tracking Status: None
"LEIGHLITER John (AREVA)" <John.Leighliter@areva.com>
Tracking Status: None
"ROMINE Judy (AREVA)" <Judy.Romine@areva.com>
Tracking Status: None
"RYAN Tom (AREVA)" <Tom.Ryan@areva.com>
Tracking Status: None
"TOLLEY Tracey (AREVA)" <Tracey.Tollar@areva.com>
Tracking Status: None
"VANCE Brian (AREVA)" <Brian.Vance@areva.com>
Tracking Status: None
"WELLS Russell (AREVA)" <Russell.Wells@areva.com>
Tracking Status: None
"WILLS Tiffany (AREVA)" <Tiffany.Wills@areva.com>
Tracking Status: None
"KOWALSKI David (AREVA)" <David.Kowalski@areva.com>
Tracking Status: None
"HARRINGTON James (AREVA)" <James.Harrington@areva.com>
Tracking Status: None
"Snyder, Amy" <Amy.Snyder@nrc.gov>
Tracking Status: None

Post Office: FUSLYNCMX03.fdom.ad.corp

Files	**Size**	**Date & Time**
MESSAGE	16374	1/29/2013 2:55:17 PM
RAI 525 Advanced Response Questions 09.01.04-27 & -29 US EPR DC.pdf	1185134	

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

Advanced Response to

Request for Additional Information No. 525(6194, 6154)

Questions 09.01.04-27 and -29

12/19/2011

U.S. EPR Standard Design Certification
AREVA NP Inc.
Docket No. 52-020
SRP Section: 09.01.04 - Light Load Handling System (Related to Refueling)
Application Section: 09.01.04

QUESTIONS for Balance of Plant Branch 1 (SBPA)
QUESTIONS for Structural Engineering Branch 2 (ESBWR/ABWR Projects) (SEB2)

Question 09.01.04-27:

OPEN ITEM

The objective of the FHS preoperational test program was found to be appropriate since it is to demonstrate the capability of the FHS to perform. The results of the FHS test program are considered to be acceptable if the FHS perform as described in Tier 2, FSAR Section 9.1.4.

While the pre-operational tests are appropriate to address the objective of the test, the staff has a concern about when this testing will be performed. For safe operation, the staff finds that the capability of the SFCTF should be performed prior to operation of the SFCTF. Since the SFCTF is not planned for use until some duration after plant operation, the applicant is requested to clearly state what testing will be performed prior to use of the SFCTF.

Response to Question 09.01.04-27:

After onsite receipt of components of the spent fuel cask transfer facility (SFCTF), inspections are performed to confirm that components were not damaged during transit or storage. Acceptable construction and installation of individual components of the SFCTF is verified through inspections. Prior to their initial use and at periodic intervals during each cask loading campaign, individual pieces of SFCTF equipment are tested to demonstrate electrical and/or mechanical functions are operational.

Pre-operational testing of the heavy load handling equipment is performed in accordance with Section 7420 of ASME NOG-1-2004. The required pre-operational tests include handling sequence tests, electrical circuit tests, leak-tightness tests, and load tests. The handling sequence tests include placement of a dummy cask on the spent fuel cask transfer machine (SFCTM), removal of the biological lid, docking a dummy cask on the penetration assembly, opening the penetration assembly, undocking the dummy cask, and installation of the biological lid. U.S. EPR FSAR Tier 2, Section 14.2.12.3.17, describes the preoperational test of the SFCTF (Test #047).

U.S. EPR FSAR Tier 2, Section 9.1.4.4, will be revised to reflect this information.

FSAR Impact:

U.S. EPR FSAR Tier 2, Section 9.1.4.4, will be revised as described in the response and indicated on the enclosed markups.

Question 09.01.04-29:

OPEN ITEM

The spent fuel cask transfer facility (SFCTF) includes two pieces of mechanical equipment which are 1) spent fuel transfer machine (SFCTM) and penetration assembly, to ensure safe transfer of spent fuel assemblies from the spent fuel pool into the spent fuel cask. US EPR FSAR Revision 4 Interim, Section 9.1.4.2 (August 31, 2011, Response to RAI 385) provides detailed description of the functional features of the SFCTF and stated that both pieces of the SFCTF equipment be designed as Seismic Category I. However, insufficient information is provided regarding the structural aspects of the SFCTF design. To facilitate the structural review of the SFCTF design, the applicant is requested to provided the following :

a. Description of overall dimensions, structural elements (beams, girders, trusses, plates, etc.) and their connections for the SFCTM and the penetration assembly, including sketches.

b. Description of the anti-seismic locking devices including their connections with the SFCTM and the structural walls (provide sketches).

c. Overall dimensions and structural description of the loading hall (concrete walls and slabs) including sketches.

Response to Question 09.01.04-29:

a. The spent fuel cask transfer machine (SFCTM) and penetration assembly are procured components. Specific design details of the components and structural elements, and their connections for the SFCTM and penetration assembly, will be developed by the vendor during the procurement phase and are not needed for design certification.

   As described in the Response to RAI 525, Question 09.01.04-34:

   - The structural design requirements for the SFCTM will be provided in the Response to RAI 525, Question 09.01.04-30.
   - The design requirements for the penetration assembly will be provided in the Response to RAI 525, Question 09.01.04-31.

b. The lateral guiding devices and anti-seismic locking devices are fixed at two sides of the SFCTM frame structure.

   The anti-seismic locking device consists of a movable part that engages in the openings in the guiding rails at the handling opening, the lid lifting station, and the penetration station. The guiding rails are placed on the corbels of the loading hall. The movable part of the anti-seismic locking device is actuated by a screw/nut system connected to an electric motor, a reduction gear, and a torque limiter. The screw movement is not possible without an external action. The anti-seismic locking devices are also equipped with a manual backup for operation in case of a loss of electric power. The position of the moveable part (locked/unlocked) is detected by a sensor. The anti-seismic locking devices, when engaged in the openings in the guiding rails at the handling opening station, the lid handling station, or the penetration station, prevent any movement of the SFCTM in the event of a seismic event or spurious behavior of the SFCTM traveling drive system.

The lateral guiding devices slide along the guiding rails and prevent tilting of the SFCTM during a seismic event.

Figure 09.01.04-29-1–SFCTM Anti-Seismic Locking Device provides an overview of the SFCTM anti-seismic locking device.

Figure 09.01.04-29-2–Lateral Guiding Devices and Anti-Seismic Locking Devices on SFCTM shows the location of the lateral guiding devices and the anti-seismic locking devices on the SFCTM frame work and their interface with the guiding rails.

U.S. EPR FSAR Tier 2, Section 9.1.4.2.2, will be revised to reflect this information.

Figure 09.01.04-29-1 will be added as a new figure to U.S EPR FSAR Tier 2, Section 9.1.4.2.2 as U.S EPR FSAR Tier 2, Figure 9.1.4-11–SFCTM Anti-Seismic Locking Device.

c. U.S. EPR FSAR Tier 2, Section 3.8.4.1.2, provides a description of the Fuel Building (FB) and includes figures that reflect structural dimensions. As shown on U.S. EPR FSAR Tier 2, Figure 3.8-41–Fuel Building Plan Elevation 0 Feet, the loading hall and cask loading pit are located internal to the FB concrete structure.

   The dimensional arrangement drawings for Seismic Category I structures of the U.S. EPR are provided in U.S. EPR FSAR Tier 2, Appendix 3B. U.S. EPR FSAR Tier 2, Figure 3B-18—Fuel Building Dimensional Plan Elevation 0 m (0 ft) and Figure 3B-29—Fuel Building Dimensional Section C-C, show the overall dimensions of the FB loading hall.

   In the Response to RAI 525, Question 09.01.04-32, U.S. EPR FSAR Tier 2, Section 9.1.4.2, was revised to include a reference to U.S. EPR FSAR Tier 2, Sections 3.8.4.1 and 3.8.4.2.

FSAR Impact:

U.S. EPR FSAR Tier 2, Section 9.1.4.2.2, will be revised; and a new Figure 9.1.4-11 added as described in the response and indicated on the enclosed markup.

Figure 09.01.04-29-1

SFCTM Anti-Seismic Locking Device

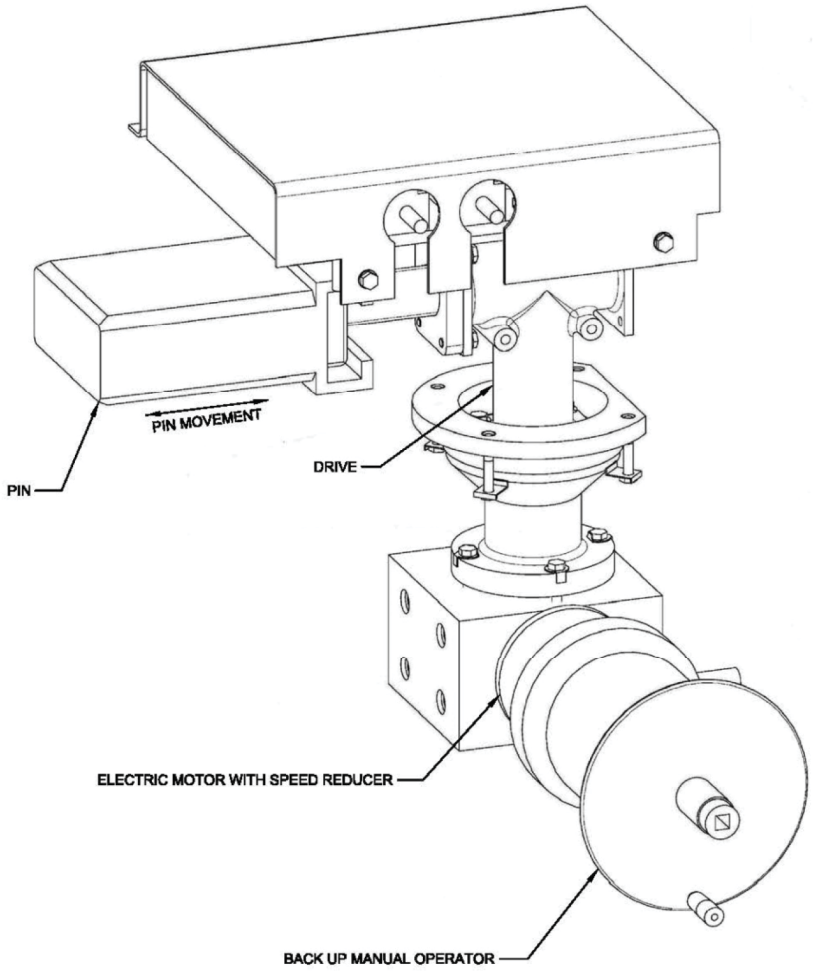
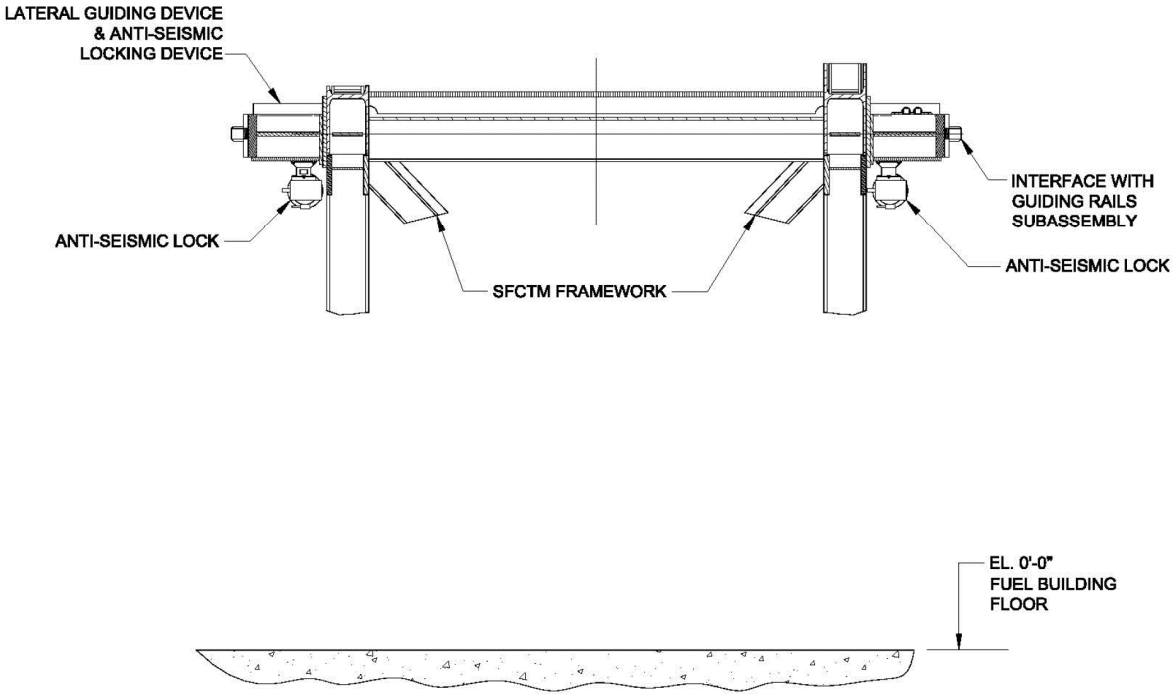


Figure 09.01.04-29-2

Lateral Guiding Devices and Anti-Seismic Locking Devices on SFCTM



U.S. EPR Final Safety Analysis Report Markups

Spent Fuel Cask Transfer Machine

The SFCTM is a trolley that moves on rails and transports the spent fuel cask vertically within the stations of the SFCTF. Motive force is provided by an onboard electric motor. The SFCTM is designed to carry a maximum load of 253,530 lb (115,000 Kg). Instrumentation and controls (I&C) are provided to support safe operation, as described in Section 9.1.4.5. The SFCTM interfaces with the plant fluid systems that are required to support cask operations, such as filling and draining.

The SFCTM is designed to remain in place and support the cask while the cask is attached to the loading pit penetration and prevent a loss of water from the SFP during an SSE that could result in potential offsite exposures. The SFCTM also provides structural support to a cask containing spent fuel to preclude fuel damage or a criticality accident.

The SFCTM is equipped with lateral guiding devices and anti-seismic locking devices. The lateral guiding device slides along the guiding rails, which are placed on the corbels of the loading hall.

During normal operation, the lateral guiding device along with the guiding rails and the sliding support of the traveling platform facilitates the limited lateral adjustment of the SFCTM. During an SSE, the lateral guiding device prevents tilting of the SFCTM when it is not positioned at the handling opening station, the lid handling station, or the penetration station.

RAI 525, Q 09.01.04-29

The anti-seismic locking devices ~~consist of movable parts~~ fixed on two sides ~~each side~~ of the SFCTM structure consist of movable parts that engage in the openings in the guiding rails ~~notches~~ fixed on the corbels of the loading hall. The movable parts are actuated by an irreversible screw/nut system connected to an electric motor, a reduction gear, and a torque limiter. The screw movement is not possible without an external action. The anti-seismic locking devices are also equipped with a manual backup for operation in case of loss of power. Sensors detect the position of the moveable parts (locked/unlocked). An anti-seismic locking device is shown in Figure 9.1.4-11—SFCTM Anti-Seismic Locking Device. The anti-seismic locking devices secure the SFCTM to the FB at the handling opening station, the lid handling station, or the penetration station. The trolley must be exactly in the axis of the station to lock anti-seismic locking devices. The anti-seismic locking devices prevent any movement of the SFCTM when it is located at these stations in the event of an SSE or spurious behavior of the traveling drive system.

SFCTM movements are stopped on a loss of power and the onboard brakes are engaged when de-energized.

The FB flooding analysis postulates a 6-inch pipe failure at the bottom of the cask loading pit. The release of water from this postulated failure would be detected by the operators performing the fuel transfer, as well as by level measurements. The released water volume is defined by a time period of 30 minutes. Since the FB flooding analysis assumes a 6-inch pipe failure, it bounds the postulated cracks in the 6-inch attached piping. Refer to Section 3.4.3.5 for a description of the FB flooding analysis.

9.1.4.4 Inspection and Testing Requirements

The safety-related components are located to permit preservice and inservice inspections. The FHS containment isolation function is testable. Refer to Section 14.2 (test abstracts #038 and #039) for initial plant testing of the FHS components. The performance and structural integrity of system components is demonstrated by continuous operation.

RAI 525, Q 09.01.04-27

The fuel handling tools are load tested to 125 percent of the rated load prior to their initial use. Visual inspections are recommended for the fuel handling tools prior to use.

After onsite receipt of components of the spent fuel cask transfer facility (SFCTF), inspections are performed to confirm that components were not damaged during transit or storage. Acceptable construction and installation of individual components of the SFCTF is verified through inspections. Prior to their initial use, and at periodic intervals during each cask loading campaign, individual pieces of SFCTF equipment are tested to demonstrate electrical and/or mechanical functions are operational.

Pre-operational testing of the heavy load handling equipment is performed in accordance with Section 7420 of ASME NOG-1-2004. The required pre-operational tests include handling sequence tests, electrical circuit tests, leak-tightness tests and load tests. The handling sequence tests include placement of a dummy cask on the spent fuel cask transfer machine (SFCTM), removal of the biological lid, docking a dummy cask on the penetration assembly, opening the penetration assembly, undocking the dummy cask, and installation of the biological lid. Refer to Section 14.2.12.3.17 for a description of the preoperational test of the SFCTF (Test #047).

The biological lid lifting station and the penetration upper cover hoist are load-tested to 125 percent of the rated load prior to their initial use.

Tests of the SFCTF equipment are performed before each cask loading campaign and include functional tests, overload protection tests, and leak tests. The tests include the following:

- The upper cover of the loading penetration assembly is tested for leak-tightness.

Figure 9.1.4-11—SFCTM Anti-Seismic Locking Device