ArevaEPRDCPEm Resource

From: WILLIFORD Dennis (AREVA) [Dennis.Williford@areva.com]
Sent: Thursday, February 28, 2013 2:52 PM
To: Snyder, Amy
Cc: Hearn, Peter; DELANO Karen (AREVA); LEIGHLITER John (AREVA); ROMINE Judy (AREVA); RYAN Tom (AREVA); WILLS Tiffany (AREVA); KOWALSKI David (AREVA)
Subject: Response to U.S. EPR Design Certification Application RAI No. 530 (6197), FSAR Ch. 9, Supplement 3
Attachments: RAI 530 Supplement 3 Response US EPR DC.pdf

Amy,

AREVA NP Inc. provided a schedule for a technically correct and complete response to Question 09.01.05-24 in RAI No. 530 on January 17, 2012. Supplement 1 and Supplement 2 responses were sent on February 24, 2012 and December 13, 2012, respectively, to provide a revised schedule.

The attached file, "RAI 530 Supplement 3 Response US EPR DC.pdf," provides a technically correct and complete final response to Question 09.01.05-24. Appended to this file are affected pages of the U.S. EPR Final Safety Analysis Report in redline-strikeout format which support a final response to RAI 530 Question 09.01.05-24.

The following table indicates the respective pages in the response document, "RAI 530 Supplement 3 Response US EPR DC.pdf," that contain AREVA NP's response to the subject question.

Question #	Start Page	End Page
RAI 530 — 09.01.05-24	2	5

This concludes the formal AREVA NP response to RAI 530, and there are no questions from this RAI for which AREVA NP has not provided responses.

Sincerely,

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

From: WILLIFORD Dennis (RS/NB)
Sent: Thursday, December 13, 2012 4:18 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); KOWALSKI David (RS/NB)
Subject: Response to U.S. EPR Design Certification Application RAI No. 530 (6197), FSAR Ch. 9, Supplement 2

Amy,

AREVA NP Inc. provided a schedule for a technically correct and complete response to the one question in RAI No. 530 on January 17, 2012. Supplement 1 response to RAI No. 530 was sent on February 24, 2012 to provide a revised schedule.

The schedule for a technically correct and complete response to the single question has been changed as provided below.

Question #	Response Date
RAI 530 — 09.01.05-24	**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: Friday, February 24, 2012 5:40 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. 530 (6197), FSAR Ch. 9, Supplement 1

Getachew,

AREVA NP Inc. provided a schedule for a technically correct and complete response to the one question in RAI No. 530 on January 17, 2012.

The schedule 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 530 — 09.01.05-24	**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 (CORP/QP)
Sent: Tuesday, January 17, 2012 3:49 PM
To: Tesfaye, Getachew
Cc: BENNETT Kathy (RS/NB); DELANO Karen (RS/NB); ROMINE Judy (RS/NB); RYAN Tom (RS/NB); KOWALSKI David (RS/NB)
Subject: Response to U.S. EPR Design Certification Application RAI No. 530 (6197), FSAR Ch. 9

Getachew,

Attached please find AREVA NP Inc.'s response to the subject request for additional information (RAI). The attached file, "RAI 530 Response US EPR DC.pdf," provides a schedule since a technically correct and complete response to the question cannot be provided at this time.

The following table indicates the respective pages in the response document, "RAI 530 Response US EPR DC.pdf," that contain AREVA NP's response to the subject question.

Question #	Start Page	End Page
RAI 530 — 09.01.05-24	2	3

A preliminary schedule for a technically correct and complete response to this question 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 530 — 09.01.05-24	February 21, 2012

Sincerely,

Dennis Williford, P.E.
U.S. EPR Design Certification Licensing Manager
AREVA NP Inc.
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From: Tesfaye, Getachew [mailto:Getachew.Tesfaye@nrc.gov]
Sent: Thursday, December 08, 2011 11:04 AM
To: ZZ-DL-A-USEPR-DL
Cc: Curran, Gordon; McKenna, Eileen; Hearn, Peter; Segala, John; ArevaEPRDCPEm Resource
Subject: U.S. EPR Design Certification Application RAI No. 530 (6197), FSAR Ch. 9

Attached please find the subject request for additional information (RAI). A draft of the RAI was provided to you on November 25, 2011, and on December 5, 2011, you informed us that the RAI is clear and no further clarification is needed. As a result, no change is made to the draft RAI. The schedule we have established for

review of your application assumes technically correct and complete responses within 30 days of receipt of RAIs, 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: 4245

Mail Envelope Properties (554210743EFE354B8D5741BEB695E6560E8E2F)

Subject: Response to U.S. EPR Design Certification Application RAI No. 530 (6197), FSAR Ch. 9, Supplement 3
Sent Date: 2/28/2013 2:51:48 PM
Received Date: 2/28/2013 2:52:10 PM
From: WILLIFORD Dennis (AREVA)

Created By: Dennis.Williford@areva.com

Recipients:
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Tracking Status: None
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Files	**Size**	**Date & Time**
MESSAGE	6261	2/28/2013 2:52:10 PM
RAI 530 Supplement 3 Response US EPR DC.pdf	667172	

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

Response to

Request for Additional Information No. 530, Supplement 3

12/08/2011

U.S. EPR Standard Design Certification
AREVA NP Inc.
Docket No. 52-020
SRP Section: 09.01.05 - Overhead Heavy Load Handling Systems
Application Section: SRP 9.1.5

QUESTIONS for Balance of Plant Branch 2 (SBPB)

Question 09.01.05-24:

OPEN ITEM

In order for the staff to conclude that the all components of the overhead heavy load handling system (OHLHS) are designed to meet GDCs 1, 2, 4, and 5, the staff issued RAIs 9.1.4-15 through 9.1.4-18 requesting the applicant to provide details of their spent fuel cask transfer facility (SFCTF) which is used for cask loading. In the response to RAI 9.1.4-15 through 9.1.4-18, the applicant indicated that the SFCTF contains heavy lifting devices. However, not all of these devices are defined in the FSAR.

The staff finds that the details of these components are needed to complete the review of the OHLHS. As a result of the review of the fuel handling system in FSAR Section 9.1.4, the staff requests the applicant to provide additional details of the devices used in the SFCTF that are classified as heavy load handling components. In addition to the auxiliary crane used in the SFCTF, the biological lid handling station and the penetration upper cover hoist are categorized as heavy load handling equipment. In addition, the staff is unable to determine what heavy loads are normally handled by the various hoists. Therefore, the applicant is requested to provide a description of the major heavy loads lifted by the FB auxiliary crane and SFCTF, including a list of heavy loads normally handled, their weights, and the hoist capacities. The applicant is requested to provide in the FSAR a list of all heavy load handling equipment and their associated design details in accordance with SRP Section 9.1.5.

As indicated in the response to RAI 9.1.4-15, the applicant indicated that the SFCTF contains heavy load handling equipment that are designed to applicable portions of the ASME NOG-1, “Rules for Construction of Overhead and Gantry Cranes (Top Running Bridge, Multiple Girder),” standards. Since the design details of the single failure proof OHLHS components are not well defined, the staff requests the applicant to define which components of the SFCTF are single failure proof and designed to NOG-1 and to identify which portions of NOG-1 are applicable and update the FSAR accordingly.

Verification of the safety-related portions of the SFCTF should demonstrate that the system is built and will operate in accordance with the FSAR. System ITAAC should be developed based on the latest design of SFCTF (such as, single failure proof design, dual loading components, etc...). The ITAAC should demonstrate that the safety and operating features, credited for safe handling and operation, are included with the design, in order to validate that the design of components and mechanisms have the ability to withstand earthquakes. ITAAC should further verify that interlocks and design features ensure that the SFCTF will safely handle heavy loads. However, no ITAAC has been provided for the components of the SFCTF and the applicant is requested to include associated ITAAC in the FSAR.

10 CFR 52.47(a)(22) requires the DCD applicant to address operating experience (OpE). Based on portions of the SFCTF being heavy loads and containing SFCTM complex attachments during cask loading, the applicant is requested to address potential causes for error including operator error, rigging failures, lack of adequate inspection and inadequate procedures for heavy load handling to address NUREG-0612 and RIS 2005-25. The staff requests the applicant to address the guidelines of SRP Section 9.1.5.III.3 for safe movement of cask and heavy loads and movement of heavy loads during the SFCTF operations.

In accordance with SRP Section 9.1.5, the following guidelines should be addressed for heavy load handling and reflected in the FSAR:

a. Safe load paths should be defined for movement of heavy loads to minimize the potential for a load drop on irradiated fuel in the reactor vessel or spent fuel pool or on safe shutdown equipment. Paths should be defined clearly in procedures and equipment layout drawings.

b. Procedures should cover load handling operations for heavy loads in the proximity of irradiated fuel or safe shutdown equipment. Procedures should include (i) identification of required equipment, (ii) inspection and acceptance criteria, (iii) steps to be followed in handling load, (iv) the safe load path, and (v) other precautions.

c. Operators should be trained and qualified and conduct themselves in accordance with chapter 2-3.1 of ASME B30.2-2005, “Overhead and Gantry Cranes.”

d. The crane should be inspected, tested, and maintained in accordance with chapter 2-2 of ASME B30.2-2005 “Overhead and Gantry Cranes” prior to use.

e. Special lifting devices should satisfy the criteria of ANSI N14.6 or, if special lifting devices are not used, slings should be selected to satisfy the criteria of ASME B30.9.

f. The crane should be designed to the criteria specified in CMAA-70, 2000 and Chapter 2-1 of ASME B30.2-2005.

The applicant is requested to provide in the FSAR a list of all heavy load handling equipment and their associated design details in accordance with SRP 9.1.5, as discussed above.

Response to Question 09.01.05-24:

Items (a) through (f) of the question represent program guidelines that should be implemented for heavy load handling in areas of the plant housing safety-related structures, systems and components (SSC). The guidelines are given in the standard review plan (SRP) Section 9.1.5.III.3. The items are addressed collectively in the response below.

In addition to the auxiliary crane, the Fuel Building contains extra lifting devices that are used in conjunction with movement of the spent fuel casks by the spent fuel cask transfer machine (SFCTM). These are designated as the penetration upper cover hoist and biological lid handling station. The penetration upper cover hoist is located above the cask loading pit and is operated from the spent fuel pool (SFP) operating floor. The biological lid handling station is located adjacent to the cask loading pit and is operated from the spent fuel cask transfer facility (SFCTF) control room.

Both of these units are stationary lifting devices and only provide for load movement in the vertical direction; no bridge or trolley is involved. The penetration upper cover hoist is a conventional wire rope hoist. The biological lid handling station relies on a screw mechanism driven by a hoist motor and gear train for load handling.

The biological lid handling station’s functions are to remove the cask lid to allow loading the spent fuel into the cask and then return the lid onto the loaded cask. The cask loading

penetration upper cover hoist assists in opening the penetration upper cover to allow loading spent fuel into the cask and closing the penetration upper cover once the cask has been loaded. Specific details regarding the function and operation of the overall system for cask loading are given in U.S. EPR FSAR Tier 2, Section 9.1.4.

These lifting devices are classified as single-failure-proof. As single-failure-proof components, they are designed to meet the requirements of ASME NOG-1 applicable to the hoisting motion for Type I hoisting units (bridge and trolley design requirements are excluded). As NOG-1 Type I, these units are designed to maintain control of and not allow a load drop, for the design basis seismic event. While not required to remain functional following a seismic event, these lifting devices are designed with manual systems to allow placing the lifted load in a safe configuration following the event.

In addition to meeting the design criteria of ASME NOG-1 applicable to the hoisting motion, these lifting devices also meet the recommended guidance specified in Section 5.0 of NUREG-0612 and SRP 9.1.5 for the handling of heavy loads. Since these lifting devices are stationary, the safe load path is defined as the area directly below the device. Procedures for load handling operations, as well as the training and qualification of operators for these devices, will be the same as for other heavy load handling components and will be addressed by the following U.S. EPR COL Information Item 9.1-1 in U.S. EPR FSAR Tier 2, Section 9.1.5.2.5:

> "A COL applicant that references the U.S. EPR design certification will provide site-specific information on the heavy load handling program, including a commitment to procedures for heavy load lifts in the vicinity of irradiated fuel or safe shutdown equipment, and crane operator training and qualification."

U.S. EPR FSAR Tier 2, Section 9.1.5.4 provides information for inspection and testing which is applicable to the biological lid handling station and the penetration upper cover hoist. Since these lifting devices do not require the use of special below the hook lifting devices, the criteria of ANSI N14.6 and ASME 30.9 do not apply in this respect. Design of these devices in accordance with ASME NOG-1 ensures that the criteria specified in CMAA-70 and ASME B30.2 is satisfied.

U.S. EPR FSAR Tier 2, Section 9.1.5 and Table 9.1.5-1 – Heavy Load Handling Equipment will be revised to include the penetration upper cover hoist and biological lid handling station as additional heavy load handling equipment in the Fuel Building. This section will also be revised to include a reference to FSAR Section 9.1.4, which provides details regarding the functions and operation of this equipment.

U.S. EPR FSAR Tier 2, Table 3.2.2-1—Classification Summary will be revised to include clarification of the description of the spent fuel cask transfer facility penetration assembly.

U.S. EPR FSAR Tier 1, Section 2.10.1 will be revised to include additional ITAAC to reflect the addition of the penetration upper cover hoist and biological lid handling station to the list of heavy load handling equipment in the Fuel Building.

FSAR Impact:

U.S. EPR FSAR Tier 2, Section 9.1.5 and Tables 3.2.2-1 and 9.1.5-1, and U.S. EPR FSAR Tier 1, Section 2.10.1 will be revised as described in the response and indicated on the enclosed markup.

U.S. EPR Final Safety Analysis Report Markups

2.10 Other Systems

2.10.1 Cranes

Design Description

1.0 System Description

The containment polar crane and the Fuel Building auxiliary crane provide for the lifting of heavy loads. The cranes can be operated during shutdown and refueling conditions. Some components of the cranes may be operated during plant operation.

The cask loading penetration upper cover hoist and the biological lid handling station located in the Fuel Building Spent Fuel Cask Transfer Facility (SFCTF) provide for the handling of heavy loads. While these are not conventional cranes, they are designed to meet the applicable design criteria for heavy load handling specified for Type I equipment in ASME NOG-1. The penetration upper cover hoist and the biological lid handling station may be operated during plant operation, shutdown and refueling conditions.

2.0 Arrangement

2.1 The locations of the containment polar crane and the Fuel Building (FB) auxiliary crane, the cask loading penetration upper cover hoist, and the SFCTF biological lid handling station are as listed in Table 2.10.1-1—Crane Equipment Mechanical Design.

2.2 Equipment identified in Table 2.10.1-1 is designed to prohibit unacceptable interaction or failure of Seismic Category I SSC.

3.0 Mechanical Design Features

3.1 Deleted.

3.2 The containment polar crane main hoist is equipped with a dual load path reeving system from the hook to the hoist brakes and redundant holding brakes.

3.3 The FB auxiliary crane hoist is equipped with a dual load path reeving system from the hook to the hoist brakes and redundant holding brakes.

3.4 The cask loading penetration upper cover hoist is equipped with a dual load path reeving system from the load attachment point to the hoist brakes and redundant holding brakes.

3.5 The SFCTF biological lid handling station is provided with a load support mechanism (screw drive).

4.0 Equipment and System Performance

4.1 Deleted.

4.2 Deleted.

4.3 The containment polar crane main hoist is load tested followed by NDE of critical welds.

4.4 The FB auxiliary crane hoist is load tested followed by NDE of critical welds.

4.5 Special lifting devices and slings used with the containment polar crane main hoist and the FB auxiliary crane hoist for critical lifts have dual load paths or double safety factors.

4.6 The cask loading penetration upper cover hoist is load tested followed by NDE of critical welds.

4.7 The SFCTF biological lid handling station is load tested followed by NDE of critical welds.~~Deleted~~.

Inspections, Tests, Analyses, and Acceptance Criteria

Table 2.10.1-2 lists the cranes ITAAC.

Table 2.10.1-1—Cranes Equipment Mechanical Design

Description	Tag Number(1)	Location	Function	Seismic Category
Containment Polar Crane	SMJ-01	Containment Building	Avoid uncontrolled lowering of heavy load.	II
FB Auxiliary Crane	SMF-01	Fuel Building	Avoid uncontrolled lowering of heavy load.	II
Cask Loading Penetration Upper Cover Hoist	FCJ12	Fuel Building	Avoid uncontrolled movements of heavy load	II
SFCTF Biological Lid Handling Station	FCJ11	Fuel Building	Avoid uncontrolled movements of heavy load	II

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

Table 2.10.1-2—Cranes ITAAC
Sheet 1 of 5

	Commitment Wording	Inspections, Tests, Analyses	Acceptance Criteria
2.1	The locations of the containment polar crane, ~~and~~ the FB auxiliary crane, the cask loading penetration upper cover hoist, and the SFCTF biological lid handling station are as listed in Table 2.10.1-1.	An inspection of location of the as-built containment polar crane, ~~and~~ the FB auxiliary crane, the cask loading penetration upper cover hoist, and the SFCTF biological lid handling station will be performed.	The containment polar crane, ~~and~~ the FB auxiliary crane, the cask loading penetration upper cover hoist, and the SFCTF biological lid handling station are located as listed in Table 2.10.1-1.
2.2	Equipment identified in Table 2.10.1-1 is designed to prohibit unacceptable interaction or failure of Seismic Category I SSC.	a. Type tests, analyses, or a combination of type tests and analyses will be performed on the equipment identified as Seismic Category I in Table 2.10.1-1 using analytical assumptions, or under conditions, which bound the Seismic Category I design requirements. b. An inspection will be performed of the as-built equipment identified as Seismic Category I in Table 2.10.1-1 to verify that the components, including anchorage, are installed per the approved design requirements.	a. Test/analysis reports conclude that the equipment identified as Seismic Category I in Table 2.10.1-1 can withstand seismic design basis loads without a loss of the function listed in Table 2.10.1-1, including the time required to perform the listed function. b. Inspection reports conclude that the equipment identified as Seismic Category I in Table 2.10.1-1, including anchorage, are installed per the approved design requirements.
3.1	Deleted.	Deleted.	Deleted.
3.2	The containment polar crane main hoist is equipped with a dual load path reeving system from the hook to the hoist brakes and redundant holding brakes.	An inspection of the as-built containment polar crane will be performed to verify that the main hoist is equipped with a dual load path reeving system from the hook to the hoist brakes and redundant holding brakes.	The containment polar crane main hoist is equipped with a dual load path reeving system from the hook to the hoist brakes and redundant holding brakes.

Table 2.10.1-2—Cranes ITAAC
Sheet 2 of 5

	Commitment Wording	Inspections, Tests, Analyses	Acceptance Criteria
3.3	The FB auxiliary crane hoist is equipped with a dual load path reeving system from the hook to the hoist brakes and redundant holding brakes.	An inspection of the as-built FB auxiliary crane will be performed to verify that the hoist is equipped with a dual load path reeving system from the hook to the hoist brakes and redundant holding brakes.	The FB auxiliary crane hoist is equipped with a dual load path from the hook to the hoist brakes and redundant holding brakes.
3.4	The cask loading penetration upper cover hoist is equipped with a dual load path reeving system from the load attachment point to the hoist brakes and redundant holding brakes.	An inspection of the as-built cask loading penetration upper cover hoist will be performed to verify that the hoist is equipped with a dual load path reeving system from the load attachment point to the hoist brakes and redundant holding brakes.	The cask loading penetration upper cover hoist is equipped with a dual load path from the load attachment point to the hoist brakes and redundant holding brakes.
3.5	The SFCTF biological lid handling station is provided with a load support mechanism (screw drive).	An inspection of the as-built SFCTF biological lid handling station will be performed to verify that the station is provided with a load support mechanism (screw drive).	The SFCTF biological lid handling station is provided with a load support mechanism (load screw).
4.1	Deleted.	Deleted.	Deleted.
4.2	Deleted.	Deleted.	Deleted.

Table 2.10.1-2—Cranes ITAAC
Sheet 3 of 5

Commitment Wording		Inspections, Tests, Analyses	Acceptance Criteria
4.3	The containment polar crane main hoist is load tested followed by NDE of critical welds.	a. A rated load test will be performed on the containment polar crane main hoist. b. A full load test will be performed on the containment polar crane main hoist. c. A no load test will be performed on the containment polar crane main hoist. d. An inspection will be performed on the as-built welded structural connections of the containment polar crane.	a. Containment polar crane main hoist passes rated load testing at a minimum of 125% of the rated load. b. Containment polar crane main hoist passes full-load testing at a minimum of 100% rated load. c. Containment polar crane main hoist passes no load testing to verify proper operation of limit switches, interlock and stop settings. d. A report concludes that non-destructive examination of welded structural connections of the containment polar crane comply with ASME NOG-1 requirements.
4.4	The FB auxiliary crane hoist is load tested followed by NDE of critical welds.	a. A rated load test will be performed on the FB auxiliary crane hoist. b. A full load test will be performed on the FB auxiliary crane hoist. c. A no load test will be performed on the FB auxiliary crane hoist. d. An inspection will be performed on the as-built welded structural connections of the FB auxiliary crane.	a. FB auxiliary crane hoist has passed rated load testing at a minimum of 125% of the rated load. b. FB auxiliary crane hoist has passed full-load testing at a minimum of 100% rated load. c. FB auxiliary crane hoist has passed no load testing to verify proper operation of limit switches, interlock and stop settings. d. A report concludes that non-destructive examination of welded structural connections of the FB auxiliary crane comply with ASME NOG-1 requirements.

Table 2.10.1-2—Cranes ITAAC
Sheet 4 of 5

	Commitment Wording	Inspections, Tests, Analyses	Acceptance Criteria
4.5	Special lifting devices and slings used with the containment polar crane main hoist and the FB auxiliary crane hoist for critical lifts have dual load paths or double safety factors.	a. An inspection will be performed on the on the as-built special lifting devices used with the containment polar crane main hoist and the FB auxiliary crane hoist to verify that they have dual load paths. b. An inspection will be performed on the on the as-built slings used with the containment polar crane main hoist and FB auxiliary crane hoist to verify that they have double safety factors.	a. The special lifting devices used with the containment polar crane main hoist and the FB auxiliary crane hoist for critical lifts have dual load paths. b. Slings used with used with the containment polar crane main hoist and the FB auxiliary crane hoist for critical lifts have double safety factors.
4.6	The cask loading penetration upper cover hoist is load tested followed by NDE of critical welds. ~~Deleted.~~	a. A rated load test will be performed on the cask loading penetration upper cover hoist. b. A full load test will be performed on the cask loading penetration upper cover hoist. c. A no load test will be performed on the cask loading penetration upper cover hoist. d. An inspection will be performed on the as-built welded structural connections of the cask loading penetration upper cover hoist. ~~Deleted.~~	a. The cask loading penetration upper cover hoist has passed rated load testing at a minimum of 125% of the rated load. b. The cask loading penetration upper cover hoist has passed full-load testing at a minimum of 100% rated load. c. The cask loading penetration upper cover hoist has passed no load testing to verify proper operation of limit switches, interlock and stop settings. d. A report concludes that non-destructive examination of welded structural connections of the cask loading penetration upper cover hoist comply with ASME NOG-1 requirements. ~~Deleted.~~

Table 2.10.1-2—Cranes ITAAC
Sheet 5 of 5

Commitment Wording		Inspections, Tests, Analyses	Acceptance Criteria
4.7	The SFCTF biological lid handling station is load tested followed by NDE of critical welds.	a. A rated load test will be performed on the SFCTF biological lid handling station. b. A full load test will be performed on the SFCTF biological lid handling station. c. A no load test will be performed on the SFCTF biological lid handling station. d. An inspection will be performed on the as-built welded structural connections of the SFCTF biological lid handling station. e. A load test will be performed by the vendor on the load screw of the SFCTF biological lid handling station.	a. The SFCTF biological lid handling station has passed rated load testing at a minimum of 125% of the rated load. b. The SFCTF biological lid handling station has passed full-load testing at a minimum of 100% rated load. c. The SFCTF biological lid handling station has passed no load testing to verify proper operation of limit switches, interlock and stop settings. d. A report concludes that non-destructive examination of welded structural connections of the SFCTF biological lid handling station comply with ASME NOG-1 requirements. e. The load screw of the SFCTF biological handling station has passed a load test for 150% of the rated load.

Table 3.2.2-1—Classification Summary
Sheet 68 of 198

KKS System or Component Code	SSC Description	Safety Classification (Note 15)	Quality Group Classification	Seismic Category (Note 16)	10 CFR 50 Appendix B Program (Note 5)	Location (Note 17)	Comments/ Commercial Code
FCJ03	Up-Ender Hoist (Fuel Building)	NS-AQ	N/A	II	Yes	UFA	ANS 57.1-1992; Located in close proximity to safety-related equipment
FCJ02	Up-Ender Hoist (Reactor Building)	NS-AQ	N/A	II	Yes	UJA	ANS 57.1-1992; Located in close proximity to safety-related equipment
FCJ12	Spent Fuel Cask Transfer Facility Penetration Assembly (excluding the Upper Cover Hoist)	S	N/A	I	Yes	UFA	ANS 57.2-1983
	Penetration Upper Cover Hoist	NS-AQ	N/A	II	Yes	UFA	ANS 57.2-1983; ASME NOG-1-2004
FCJ10	Spent Fuel Cask Transfer Machine	S	N/A	I	Yes	UFA	ANS 57.2-1983
FCJ11	Biological Lid Handling Station	NS-AQ	N/A	II	Yes	UFA	ANS 57.2-1983

equipment hatch level. These cranes are located in areas remote from the spent fuel pool such that movement of loads in the vicinity of the spent fuel pool by these cranes is not possible.

The Fuel Building also contains lifting devices that are used in conjunction with movement of the spent fuel casks in the spent fuel cask transfer facility (SFCTF). These are designated the cask loading penetration upper cover hoist and the biological lid handling station. The cask loading penetration upper cover hoist is located on the spent fuel pool operating floor. The biological lid handling station is located adjacent to the cask loading pit. The biological lid handling station's functions are to remove the cask lid to allow loading the spent fuel into the cask and then return the lid onto the loaded cask. The cask loading penetration upper cover hoist assists in opening the penetration upper cover to allow loading spent fuel into the cask and closing the penetration upper cover once the cask has been loaded. Additional details regarding the design, function and operation of the SFCTF are given in Section 9.1.4. These lifting devices are not conventional cranes, but components of these devices are designed per the guidance of ASME NOG-1 for Type I cranes and ANSI N14.6-2004 (Reference 9).

These lifting devices also meet the recommended guidance specified in Section 5.0 of NUREG-0612 and SRP 9.1.5 for the handling of heavy loads. Since these lifting devices are stationary units, the safe load path is defined as the area directly below the device. Since these lifting devices do not require the use of special below the hook lifting devices, the criteria of ANSI N14.6 and ASME 30.9, for below the hook lifting devices, do not apply. Design of these devices, in accordance with ASME NOG-1, ensures that the criteria specified in CMAA-70, 2000 and ASME B30.2-2005 is satisfied.

The Safeguard Buildings, Emergency Power Generating Buildings, and ultimate heat sink/essential service water structures are also equipped with cranes that are rated for heavy loads. For these divisionally separated buildings, the local effect of a load drop is restricted to the affected division. Accordingly, the loss of a safety system inside the affected division is acceptable from a nuclear safety standpoint.

If one division is unavailable because of maintenance, load handling over in-service safety-related equipment and systems of other divisions is procedurally prohibited. During a seismic event, the design of Type II cranes results in the cranes remaining in place and not impacting safety-related equipment and systems below the cranes. The design of Type II cranes requires electrical power to enable the crane hoist brakes to open. In the event of a common mode failure causing a loss of electrical power, the hoist brakes close enabling the load to be placed in a safe condition.

For buildings that are not completely divisionally separated (Containment Building, Reactor Building Annulus, and Fuel Building), handling of heavy loads by non-single

Table 9.1.5-1—Heavy Load Handling Equipment
Sheet 1 of 2

COMPONENT	CRANE / HOIST TYPE	LOCATION	MAXIMUM LOAD RATING	SINGLE FAILURE-PROOF	DESIGN CODE	CRANE TYPE
Reactor Building Polar Crane	Double Girder Electric Overhead Traveling (EOT) Bridge Crane	Containment Building	320 metric tons	Yes	NOG-1	I
Fuel Building Auxiliary Crane	Double Girder EOT Bridge Crane	Fuel Building	20 metric tons	Yes	NOG-1	I
Cask Loading Penetration Upper Cover Hoist	Electric Wire Rope Hoist (Stationary)	Fuel Building	2 metric tons	Yes	NOG-1	N/A*
SFCTF Biological Lid Handling Station	Electric Hoist Unit (Stationary) with Screw Lift Mechanism	Fuel Building	6 metric tons	Yes	NOG-1, ANSI N14.6	N/A*
HVAC Equipment Room Cranes	Single Girder Bridge Crane	Containment Building	2 metric tons	No	NUM-1	II
Steam Generator Cubicle Cranes	Jib Crane	Containment Building	2 metric tons	No	NUM-1	II
Assembly Crane	Electric Underhung Bridge Crane	Containment Building	5 metric tons	No	NUM-1	II
Equipment Lock Crane	Double Girder EOT Bridge Crane	Fuel Building	90 metric tons	No	NOG-1	II
Equipment Lock Crane	Electric Underhung Bridge Crane	Fuel Building	20 metric tons	No	NUM-1	II
Diesel Hall Cranes	Electric Underhung Bridge Crane	Emergency Power Generating Buildings	2 metric tons	No	NUM-1	II
Main Steam Valve Station Cranes	Electric Underhung Bridge Crane	Safeguard Buildings	5 metric tons	No	NUM-1	II

Table 9.1.5-1—Heavy Load Handling Equipment
Sheet 2 of 2

COMPONENT	CRANE / HOIST TYPE	LOCATION	MAXIMUM LOAD RATING	SINGLE FAILURE-PROOF	DESIGN CODE	CRANE TYPE
Hot Workshop Crane	Double Girder Crane	Nuclear Auxiliary Building	10 metric tons	No	NOG-1	III
Entrance Area Crane	Double Girder Bridge Crane	Radwaste Building	20 metric tons	No	NOG-1	III
Drum Storage Area Crane	Double Girder Crane	Radwaste Building	2 metric tons	No	NOG-1	III
Hot Workshop Crane	Double Girder Crane	Radwaste Building	16 metric tons	No	NOG-1	III
Decontamination Area Crane	Single Girder Crane	Radwaste Building	5 metric tons	No	NUM-1	III
Gantry Crane	Double Girder Crane	Outside Fuel Building	160 metric tons	No	NOG-1	II
Pump Room Cranes	Jib Crane	ESW Pump Structure	1 metric ton	No	NUM-1	II

NOTES:

One metric ton equals 1000 kg, or approximately 2205 lb.

* Stationary hoisting device only; not a conventional crane.

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