ArevaEPRDCPEm Resource

From: RYAN Tom (AREVA) [Tom.Ryan@areva.com]
Sent: Friday, April 12, 2013 3:23 PM
To: Snyder, Amy
Cc: DELANO Karen (AREVA); LEIGHLITER John (AREVA); ROMINE Judy (AREVA); RYAN Tom (AREVA); WILLS Tiffany (AREVA); HONMA George (EXTERNAL AREVA); KANE Steve (EXTERNAL AREVA); WILLIFORD Dennis (AREVA)
Subject: Response to U.S. EPR Design Certification Application FNAL RAI No. 570 (6989), FSAR Ch.12, Supplement 1
Attachments: RAI 570 Supplement 1 Response US EPR DC.PDF

Amy,

AREVA NP Inc. provided a schedule for a technically correct and complete response to the one question in RAI No. 570 on April 10, 2013.

Attached please find AREVA NP Inc.'s technically correct and complete response to the subject request for additional information (RAI) as promised. The attached file, "RAI 570 Supplement 1 Response US EPR DC.pdf," provides a technically correct and complete final response to the one question in RAI No. 570.

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 570, Question 12.03-12.04-32.

Also included are related markups to AREVA NP's document, ANP-10292, Revision 1, "U.S. EPR Conformance with Standard Review Plan (NUREG-0800) Technical Report."

The following table indicates the respective pages in the response document, "RAI 570 Supplement 1 Response US EPR DC.pdf," that contain AREVA NP's response to the subject question.

Question #	Start Page	End Page
RAI 570 — 12.03-12.04-32	2	5

This concludes the formal AREVA NP response to RAI 570, and there are no questions from this RAI for which AREVA NP has not provided responses.

Sincerely,

Tom Ryan
Project Engineer
Regulatory Affairs
AREVA NP
An AREVA and Siemens company
7207 IBM Drive - CLT2B
Charlotte, NC 28262
Phone: 704-805-2643, Cell : 704-292-5627
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From: WILLIFORD Dennis (RS/NB)
Sent: Wednesday, April 10, 2013 5:52 PM
To: Amy.Snyder@nrc.gov

Cc: phyllis.clark@nrc.gov; DELANO Karen (RS/NB); LEIGHLITER John (RS/NB); ROMINE Judy (RS/NB); RYAN Tom (RS/NB); WILLS Tiffany (CORP/QP); HONMA George (EXT); KANE Steve M (EXT)
Subject: Response to U.S. EPR Design Certification Application FNAL RAI No. 570 (6989), FSAR Ch.12

Amy,

Attached please find AREVA NP Inc.'s response to the subject request for additional information (RAI). The attached file, "RAI 570 Response US EPR DC.pdf" provides a schedule since a technically correct and complete response to this one question cannot be provided at this time.

The following table indicates the respective pages in the response document, "RAI 570 Response US EPR DC.pdf" that contain AREVA NP's response to the subject question.

Question #	Start Page	End Page
RAI 570 — 12.03-12.04-32	2	3

A complete answer is not provided for the one question. The schedule for a technically correct and complete final response to this question is provided below.

Question #	Response Date
RAI 570 — 12.03-12.04-32	April 12, 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: Snyder, Amy [mailto:Amy.Snyder@nrc.gov]
Sent: Tuesday, March 12, 2013 12:34 PM
To: ZZ-DL-A-USEPR-DL
Cc: Stutzcage, Edward; McCoppin, Michael; Clark, Phyllis
Subject: U.S. EPR Design Certification Application FNAL RAI No. 570 (6989), FSAR Ch.12

RESENT-

Corrected the RAI question number from 12.03-32 to 12.03-12.04-32

See attached file.
Thank you
Amy

Attached, please find the subject requests for additional information (RAI). An advanced RAI was provided to you on January 18,2013, and discussed with your staff on February 4, 2013. On February 8, 2013, the staff made substantive changes/ additional changes to the January 18, 2013 advanced RAI beyond what was discussed, based on the discussion during the February 4, 2013 teleconference. On February 22, 2013, AREVA made a suggested change to the wording of the RAI. On February 27, 2013 staff accepted AREVA's modification but added additional wording.

On March 7, 2013, you informed us that the modified advanced RAI is clear and no further clarification is needed and that the RAI does not contain any proprietary information. 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 or April 11, 2013**, 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."

Thank You,

Amy

Amy Snyder, U.S. EPR Design Certification Lead Project Manager
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Hearing Identifier: AREVA_EPR_DC_RAIs
Email Number: 4328

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Sent Date: 4/12/2013 3:23:19 PM
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From: RYAN Tom (AREVA)

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MESSAGE	5045	4/12/2013 3:23:54 PM
RAI 570 Supplement 1 Response US EPR DC.PDF	975470	

Options
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Response to

Request for Additional Information 570, Supplement 1

3/11/2013
U. S. EPR Standard Design Certification
AREVA NP Inc.
Docket No. 52-020

Review Section: 12.03-12.04 - Radiation Protection Design Features

Question 12.03-12.04-32:

This is a follow up to the applicant's response to RAI 548, Supplement 1, Question 12.03-12.04-30.

10 CFR 20.1601 and 10 CFR 20.1602 require that appropriate controls are in place to control access to high and very high radiation areas.

Based on the applicant's supplemental response to RAI 548 and information provided in clarification calls, staff has the following questions:

1. In response to question 4 of the supplemental questions to Question 12.03-12.04-30, the applicant stated, "The design of the locking mechanism for the large radiation protection doors will be such that the shear pin will engage after door closure and disengage prior to door opening such that damage to the shear pin will not occur." The applicant has since stated that the above statement does not only apply to the "large" radiation protection doors, but to all radiation protection doors in containment. Please include a similar statement to the above, removing the word "large," in FSAR Section 12.3.1.8.1. This information is necessary to ensure compliance with the access controls required by 10 CFR 20.1601 and 20.1602.
2. In the basis section of U.S. EPR Technical Specification 3.6.10, the applicant states that a differential pressure of 2.9 psid +20%, is assumed in the containment analysis. However, it is unclear at what pressure the shear pin is designed to break. For all radiation protection doors in containment (not only the doors listed in Technical Specification 3.6.10), please indicate at what pressure or force, the sheer pins are designed to break. In addition, for all radiation protection doors in containment, please include a statement in FSAR Chapter 12 ensuring that a shear pin will not break with a person pulling or pushing on a door with a reasonable pulling or pushing force (without using extraordinary force, tools, equipments, etc). This information is necessary to ensure compliance with the access controls required by 10 CFR 20.1601 and 20.1602, and is a follow up to the response to question 5 of the supplemental questions to Question 12.03-12.04-30.
3. 10 CFR 20.1601 (d) requires that the licensee establish controls in a way that does not prevent individuals from leaving a high or very high radiation area. Therefore, a door to a high or very high radiation area must be designed in a way that would allow an individual inadvertently locked inside such an area, to egress from the area.
    a. U.S. EPR Technical Specification 3.6.10 states that the listed radiation protection doors in containment must begin to open with an opening torque of less than 500 ft.-lbs. This test is performed with the shear pin disengaged and is necessary to ensure that the doors have not developed excessive friction (freedom of movement), to ensure the doors can meet their safety-related function. The applicant has confirmed that this is the maximum allowable torque to open the doors. However, 10 CFR 20.1601 and 10 CFR 20.1602 require that controls be in place in a way that does not prevent individuals from leaving high and very high radiation areas. Staff is concerned that if an individual gets locked inside an area with a door that does not open until nearly 500 ft-lbs torque is applied, they may not be able to egress from an area unassisted. Please explain how an individual will egress from such an area. The information provided should be sufficient to ensure emergency egress can occur not only from the doors listed in the Technical Specifications, but from all radiation protection doors in containment. Any

unique features being utilized that would assist someone in pushing open these doors should be listed in the FSAR.

If the applicant decides to alter Technical Specification 3.6.10 or develop a separate test from Technical Specification 3.6.10, the applicant must ensure that the doors are tested at a frequency sufficient to provide reasonable assurance that the doors will maintain their ability to adequately allow emergency egress. The applicant should take appropriate actions to restore function of the doors if the test results are unsatisfactory. In addition, the applicant should specify a maximum allowable time that may elapse until a door whose test results are unsatisfactory, must be fixed. Finally, the applicant must ensure that if a failure of a test does occurs, that access to areas continue to be appropriately controlled in accordance with EPR technical specifications 5.7.1 and 5.7.2, 10 CFR 1601(d), and 10 CFR 1602, as applicable. The FSAR should be updated, as appropriate, to address the above items.

b. FSAR Table 3.8-18 indicates that Doors 8 and 9 on the +5 ft. elevation of containment are motor operated rolling doors without hinges and are considerably large. These doors provide access to areas with potentially significant dose rates (FSAR Figure 12.3-13 appears to list these areas as up to 500 Rad/hour). While staff realizes that dose rates will likely be considerably lower when these areas are being accessed, the potential exists for someone to be inadvertently locked inside one of these areas. Therefore, the applicant must provide information in the FSAR describing how someone would be able to egress from these areas if inadvertently locked inside. The applicant must include information in the FSAR describing how someone would egress from these areas if locked inside and the motor operation of the doors fail (such as during a power outage or motor failure).

c. FSAR Section 12.3.1.8 provides general statements regarding compliance with 10 CFR 20.1601 and 10 CFR 20.1602. However, there is nothing in FSAR Section 12.3.1.8, indicating that high and very high radiation areas (in general) are designed in a way that permits emergency egress (FSAR Section 12.3.1.8.1 discusses emergency egress from the radiation protection doors in containment, but this statement does not include emergency egress from the other doors in containment or egress from other high or very high radiation areas). Therefore, please update FSAR Section 12.3.1.8 to include a general statement indicating that emergency egress is possible from all accessible areas that fall within the requirements of 10 CFR 20.1601 and 10 CFR 20.1602.

Response to Question 12.03-12.04-32:

Item 1:

The U.S. EPR FSAR, Tier 2, Section 12.3.1.8.1, will be revised to reference the design features of the radiation protection doors including emergency egress which are described in U.S. EPR FSAR, Tier 2, Section 3.8.3.1.13. FSAR, Tier 2, Section 3.8.3.1.13 will be revised to remove of the word "large" as there are no differences in the locking mechanism of the radiation swing doors. A description similar to that suggested in the question will be added to FSAR, Section 3.8.3.1.13 to indicate that the design of the locking mechanism for the radiation protection swing doors will be such that the shear pin will engage after door closure and disengage prior to opening to preclude damage to the shear pin while performing entry and egress functions.

Item 2:

The U.S. EPR FSAR, Tier 2, Section 3.8.3.1.13 provides details of the containment radiation protection doors design. There are 47 radiation protection doors in containment. Forty-five of these radiation protection doors provide a pressure relief function and the door "swings" open to meet its pressure relief function and incorporates a shear pin as part of the locking mechanism design. For all radiation protection swing doors in containment (not only the doors listed in Technical Specification 3.6.10), the pressure at which the shear pins are designed to break is 2.9 psid +20%. This value is provided in U.S. EPR FSAR, Tier 2, Table 3.8-18 for each door. This pressure value, when applied across the surface area of the radiation swing door, results in a significantly large force required to break or shear the pin such that a person pulling or pushing on these doors with a reasonable pulling or pushing force (without using extraordinary force, tools, equipment, etc) could not inadvertently open this door when the pin is engaged as part of the locking mechanism. U.S. EPR FSAR, Tier 2, Section 3.8.3.1.13 will be revised to clarify this design information.

The two radiation protection doors in containment that do not provide a pressure relief function are motor operated rolling doors, without hinges, and no shear pin is incorporated in their locking mechanism design. The locking mechanism for these doors is designed to ensure they cannot be inadvertently opened during operation while also meeting the function of allowing for emergency egress. To address inadvertent operation/opening of the doors, the locking mechanism is designed such that locking the door will de-energize the motor so that the door cannot be opened. For emergency egress, a "panic" lock system is employed which allows for manual opening of the motor operated rolling doors from the inside using a handle which decouples the electric drive to allow door opening even with the motor de-energized. This provides for an exit out of the room even if the door is locked from the outside during an emergency or the need to egress quickly. U.S. EPR FSAR, Tier 2, Section 3.8.3.1.13 will be revised to clarify the design and add the above statements to address the design of these doors to meet the requirements of 10 CFR 20.1601 and 20.1602. In accordance with 10 CFR 52.47(a)(9), ANP-10292, "U.S. EPR Conformance with SRP Acceptance Criteria," AREVA NP Inc., Rev. 1, dated May 2009, will be revised to reference this discussion.

Item 3:

a) U.S. EPR FSAR, Tier 2, Section 3.8.3.1.13 will be revised to provide information on how an individual can egress from an area with any of the radiation protection doors in containment (swing or motor operated rolling doors). U.S. EPR FSAR, Tier 2, Section 14.2.12.5.2,

(Reactor Containment Building Doors - Test # 044), will also be revised to add a test of all radiation doors in containment at a lower value of 100 ft.-lbs. torque including the safety related doors in Technical Specification section 3.6.10

(Note: at a minimum door width of two and a half ft. hinge to handle distance this equates to a 40 lb. force required for personnel to open the door). This test will verify that the force at which the door will open for emergency egress is sufficiently low so that a person pulling or pushing on these doors with a reasonable pulling or pushing force will be able to open the door and will verify that they are capable of meeting the emergency egress design requirement of beginning to open with a torque of less than 100 ft-lbs.

U.S. EPR FSAR, Tier 2, Section 3.8.3.1.13 will be revised to state that periodic door testing will be performed during plant operation, similar to Chapter 14.2.12.5.2 Test #044, to confirm that the radiation doors are capable of meeting the applicable requirements of 10 CFR 20.1601(d), and 10 CFR 20.1602. Periodic testing provides reasonable assurance that the doors will maintain their ability to adequately allow emergency egress. Doors that are not capable of meeting design requirements per this test will be administratively controlled until repairs have been completed.

b) The response to question number 2 and 3 a) above addresses the emergency egress features for the two radiation protection motor operated rolling doors identified in, U.S. EPR FSAR, Tier 2, FSAR Table 3.8-18, Doors 8 and 9 on the +5 ft. elevation of containment. The response to question 3 a) describes how U.S. EPR FSAR, Tier 2, Section 14.2.12.5.2 (Reactor Containment Building Doors - Test # 044) will be revised to add a test to verify that the motor operated rolling doors are also capable of meeting the emergency egress design requirements of 10 CFR 20.1601 and 20.1602.

c) U.S. EPR FSAR, Tier 2, Section 12.3.1.8, will be updated to indicate that emergency egress is possible from the accessible areas that fall within the requirements of 10 CFR 20.1601 and 10 CFR 20.1602.

FSAR Impact:

U.S. EPR FSAR, Tier 2, Sections 3.8.3.1.13, 12.3.1.8.1.1, and 14.2.12.5.2 will be revised as described in the response and indicated on the enclosed markup.

Technical Report Impact:

ANP-10292, “U.S. EPR Conformance with Standard Review Plan (NUREG-0800),” will be revised as described in the response and indicated on the enclosed markup.

U.S. EPR Final Safety Analysis Report Markups

remaining radiation doors are classified as non-safety augmented quality (NS-AQ) and Seismic Category II as shown in Table 3.2.2-1 and Table 3.8-18.

The radiation protection doors in the Reactor Building that include a pressure relief function are designed so that the whole door "swings" open during a pressure differential related accident (High Energy Line Break) to meet its pressure relief function. The locking mechanisms of those radiation protection doors incorporate a "shear" pin which shears under the designated burst pressure in Table 3.8-18 to provide for the opening of these doors in the event of a High Energy Line Break. This burst pressure value for the radiation swing doors specified in Table 3.8-18, when applied across the surface area of the door, results in a significantly large force required to break or shear the pin such that a person pulling or pushing on these doors with a reasonable pulling or pushing force (without using extraordinary force, tools, equipment, etc.) could not inadvertently open this door when the pin is engaged as part of the locking mechanism.

During normal operation, the shear pin also functions to engage as part of the locking mechanism on the radiation swing door to maintain access control and prevent unauthorized entry, and disengages to allow for emergency egress. The design of the locking mechanism for the radiation protection swing doors is such that the shear pin will engage after door closure and disengage prior to opening to preclude damage to the shear pin while performing the entry and egress functions. For emergency egress, a "panic" lock system is employed which allows for manual opening of the swing doors from the inside to provide an exit out of the room during an emergency even if the door is locked from the outside.

Thus, the radiation protection doors dual function design allows it to meet 10 CFR 20.1601 and 10 CFR 20.1602 requirements for access control to high radiation areas and very high radiation areas, respectively, while also meeting its pressure relief function for accident mitigation.

Two radiation protection doors exist at Elevation +5 feet that do not provide a pressure relief function. These doors are motor-operated, rolling doors without hinges.

There is no shear pin incorporated into the locking mechanism design of these doors. The locking mechanism for the motor-operated rolling doors is designed so that these doors cannot be inadvertently opened during operation while also allowing for emergency egress. To address inadvertent operation/opening of the door, the locking mechanism is designed such that locking the door will de-energize the motor such that the door cannot be opened. For emergency egress, a "panic" lock system is employed which allows for manual opening of the motor-operated rolling doors from the inside using a handle which decouples the electric drive to allow door opening even with the motor de-energized. This provides exit out of the room during an emergency even if the door is locked from the outside.

Periodic door testing will be performed during plant operation, similar to Section 14.2.12.5.2, Reactor Containment Building Doors, test #044, to confirm that the radiation doors are capable of meeting the applicable requirements of 10 CFR 1601(d) and 10 CFR 1602. Periodic testing provides reasonable assurance that the doors will maintain their ability to adequately allow emergency egress. Doors that are not capable of meeting design requirements per this test will be administratively controlled until repairs have been completed.

Other interior building room doors are primarily used to divide hallways and rooms. In addition to providing personnel access, these interior door types may also provide functions such as leak tightness. The RCB has 45 interior building doors. Forty-three of these doors provide a pressure relief function. These doors are designed with an integral pressure relief aperture or "blowout panel." The pressure relief aperture is designed to open or burst in only one direction to meet its pressure relief function during a pressure differential accident. Generally, these 43 interior building room doors have a burst pressure of 1.45 psid. A portion of these doors are credited in the analyses to prevent compartment over pressurization during a HELB and are classified as safety-related and Seismic Category I as shown in Table 3.2.2-1 and Table 3.8-18. Refer to Section 6.2.1.2 for the dynamic effects of postulated HELB in individual compartments and allowable venting capability to prevent differential pressures from reaching the structural limits of the compartment walls. The only doors with burst panels credited to open are safety-related doors identified in Table 6.2.1-13 and Table 3.8-18. The remaining interior building doors are classified as NS-AQ and Seismic Category II as shown in Table 3.2.2-1 and Table 3.8-18.

The pressure relief door -8 feet, door 8 is the venting area room door for the spreading compartment and has a higher burst pressure up to 2.9 psid.

The doors with blowout panels are provided with panel or missile restraints to prevent their momentum from adversely impacting civil, mechanical, electrical, or I&C components in the immediate area.

There are two interior building room doors at Elevation +17 feet that do not provide a pressure relief function. These two doors provide access and entrance to the RV cavity pool area and the transfer canal pool area, are part of the pool liner, and are required to be water tight, with no pressure relief function or bust pressure capability required in support of a HELB.

3.8.3.2 Applicable Codes, Standards, and Specifications

The following codes, standards, specifications, design criteria, regulations, and regulatory guides are used in the design, fabrication, construction, testing, and inservice inspection of concrete and steel RB internal structures (GDC 1, GDC 2, GDC

in operation. The aeroball system normal operation does not require local operator action and is not considered a radiological vital area.

Radiation sources in the Reactor Building include the reactor vessel, RCS, CVCS, safety injection system, pressurizer relief tank, in-containment refueling water storage tank, refueling system, aeroball system, and the reactor drain system.

12.03-32

Radiation protection doors that separate the Reactor Building equipment and service compartments consist of two types, as noted in Section 3.8.3.1.13. These two types are as follows:

- Radiation protection doors, with a pressure relief function.
- Radiation protection doors, without a pressure relief function.

The design features of these radiation protection doors which meet 10 CFR 20.1601 and 10 CFR 20.1602 are described in Section 3.8.3.1.13, including the provision for emergency egress from all accessible areas that fall within the requirements of 10 CFR 20.1601 and 10 CFR 20.1602.

~~Doors separate Reactor Building equipment and service compartments.~~

The following figures illustrate the Reactor Building and are based on the general arrangement drawings provided in Section 1.2:

- Figure 12.3-1—Spreading Area at the -20 Ft Elevation of the Reactor Building.
- Figure 12.3-2—Reactor Cavity at the +17 Ft Elevation of the Reactor Building.
- Figure 12.3-3—Core Internals Storage Area and Instrument Lance Storage Areas at the +17 Ft Elevation in the Reactor Building.
- Figure 12.3-4—Transfer Pit at the +17 Ft Elevation in the Reactor Building.
- Figure 12.3-7—Reactor Cavity Section.
- Figure 12.3-8—Containment Building Section Looking Plant-West at the Reactor Cavity, Core Internals Storage, Instrument Lance Storage, and Spreading Area.
- Figure 12.3-9—Containment Building Section Looking Plant-East at the Reactor Cavity, Core Internals Storage, Transfer Pit, and Spreading Area.

12.3.1.8.2 Fuel Building

The very high radiation areas in the Fuel Building during normal and refueling operations are:

2.2 RWSS instrumentation has been calibrated and is functional for performance of the following test.

2.3 Support system required for operation of the RWSS is complete and functional.

2.4 Test instrumentation available and calibrated.

2.5 The RWSS intake is being maintained at the water level specified in the design documents.

2.6 The RWSS flow balance has been performed.

3.0 TEST METHOD

3.1 Verify that the RWSS pump and system flow meet design requirement (refer to Section 9.2.9).

3.2 Verify standby RWSS pump starts on low discharge pressure or a trip of the running pump.

4.0 DATA REQUIRED

4.1 Pump operating data.

4.2 Setpoints at which alarms and interlocks occur.

5.0 ACCEPTANCE CRITERIA

5.1 The RWSS operates as designed (refer to Section 9.2.9):

5.1.1 RWSS flow meets design requirements.

5.1.2 RWSS alarms, interlocks, and controls (manual and automatic) function as designed.

5.1.3 The RWSS pumps meet design requirements.

14.2.12.5.2 Reactor Containment Building Doors (Test #044)

1.0 OBJECTIVE

1.1 To perform testing to ensure that reactor containment building (RCB) radiation doors are capable of meeting design requirements.

1.1.1 Door locks, local and remote alarms, and video surveillance, in compliance with 10 CFR 20.1601 and 10 CFR 20.1602 requirements, have been installed on doors that restrict access to HRA or VHRA areas (refer to Section 12.3.1.8.1). ~~Deleted.~~

1.1.2 Pressure relieving function (refer to Section 3.8.3.1.13 and Table 3.8-18.~~(refer to Section 6.2.5).~~

1.1.3 Seal between the equipment compartment and the service compartment.

1.1.4 Radiation barrier between the radiation sources in the equipment compartment and the service compartment~~, where~~

~~personnel access is allowed in MODE 1~~ areas (refer to ~~Section 12.1~~Section 12.3.1.8.1).

1.2 To perform testing to ensure that RCB doors with pressure relieving panels are capable of meeting design requirements.

1.2.1 Pressure relieving function.

1.2.2 Seal between the equipment compartment and the service compartment.

1.2.3 RCB doors lockset design meets 10 CFR 20.1601 and 10 CFR 20.1602 requirements to control access as described in Section 12.3.1.8.1.

1.3 To perform testing to ensure that RCB watertight doors are capable of meeting design requirements.

2.0 PREREQUISITES

2.1 Construction activities on the following have either been completed or exceptions have been recorded and the impact on the system performance has been determined.

2.1.1 RCB radiation doors.

2.1.2 RCB doors with pressure relieving panels.

2.1.3 RCB watertight doors

2.2 Test instrumentation is available and calibrated. A record of calibrated test instrumentation used with individual tracking number and calibration due date shall be recorded in the official test record.

2.3 The following instrumentation, as applicable, has been calibrated and is operating satisfactorily:~~Deleted.~~

2.3.1 Video surveillance.

2.3.2 Local and remote alarms.

2.4 Verify that RCB ventilation systems are capable of operating in various normal configurations.

2.5 The motorized RCB radiation doors, that are listed in Table 3.8-18 as motor operated rolling doors, are functional including the motor operators and associated key controlled switches located in the accessible (low dose side) and the emergency switch located in the non-accessible (high dose side).

3.0 TEST METHOD

3.1 ~~Deleted~~Observe RCB radiation door remote position indication including local and remote alarms, as applicable.

3.2 Observe force required to open RCB radiation doors, that are described in Table 3.8-18 as swing doors, with shear pins disengaged:~~.~~

3.2.1 ~~Deleted~~Breakaway torque.

3.2.2 ~~Deleted~~Required torque to continue opening each RCB radiation door.

3.3 Observe that each RCB radiation door, that is described in Table 3.8-18 as a swing door, shear pin engages and the locking mechanism prevents unauthorized entry that meets the requirements of 10 CFR 20.1601 and 10 CFR 20.1602 control access described in Section 12.3.1.8.1.~~Observe that each RCB radiation door shear pin engages and the locking mechanism prevents unauthorized entry.~~

3.3.1 The radiation door opens and closes as designed.

3.3.2 The shear pin engages when the closure mechanism is activated.

3.3.3 The shear pin is locked in the engaged position when the lockset is activated.

3.3.4 The radiation swing doors cannot be opened, from the accessible area, when the lockset is locked either by pulling on the door (normal force) or by attempting to disengage the closure mechanism.

3.3.5 The radiation door closure mechanism, for doors that are described in Table 3.8-18 as swing doors, can be opened when the lockset is deactivated from the non-accessible (high dose side) area using the emergency escape feature.

3.4 Observe that each RCB radiation door opens freely without obstruction.

3.5 ~~Deleted~~Observe width of opening of each RCB radiation door when fully open.

3.6 Observe seal of each RCB radiation door when the door is shut.

3.7 Observe that each RCB door with pressure relieving aperture latch engages and the locking mechanism prevents unauthorized entry from the accessible (low dose) area.~~Observe that each RCB door with pressure relieving aperture latch engages and the locking mechanism prevents unauthorized entry.~~

3.8 Observe seal of each RCB door with pressure relieving aperture when the door is shut.

3.9 Observe that each RCB door with pressure relieving panel is free to open without obstruction.

3.10 Observe that each RCB door with pressure relieving aperture latch engages and the locking mechanism allows entry from the non-accessible (high dose) area when the emergency escape feature is activated.

3.11 Observe that each RCB radiation door, that is described in Table 3.8-18 as a motor operated rolling door, locking mechanism prevents unauthorized entry that meets the requirements of 10 CFR 20.1601 and 10 CFR 20.1602 control access described in Section 12.3.1.8.1.

3.11.1 The radiation motor operated rolling door opens and closes as designed.

3.11.2 The radiation motor operated rolling door cannot be opened, from the accessible area, when the motor control lockset is locked either by pulling on the door (normal force) or by attempting to operate the controls when the control switch has been locked.

3.11.3 The radiation door closure mechanism, for doors that are described in Table 3.8-18 as motor operated rolling doors, can be opened when the emergency escape feature is activated from the non-accessible (high dose side) area.

3.12 ~~Deleted~~Observe RCB watertight door features.

3.13 Observe that each RCB watertight door latch engages and the locking mechanism prevents unauthorized entry.

3.14 Observe that each RCB watertight door opens freely without obstruction.

3.15 Observe seal of each RCB watertight door when the door is shut.

3.16 Operate the RCB ventilation system in various configurations while positioning the doors and verify no adverse effects.

4.0 DATA REQUIRED

4.1 ~~Deleted~~RCB door instrumentation response, as applicable.

4.2 ~~Deleted~~Breakaway torque to open each RCB radiation swing door.

4.3 Performance data for radiation door closure device and the lockset.

4.4 Required torque to continue to open each RCB radiation swing door.

4.5 ~~Deleted~~Record width of opening for each RCB radiation swing door with door fully open.

4.6 Seal condition of the following:

4.6.1 RCB radiation swing doors

4.6.2 RCB doors with pressure relieving panels.

4.6.3 RCB radiation door, described in Table 3.8-18, as a motor-operated rolling door.

4.6.4 RCB watertight doors.

5.0 ACCEPTANCE CRITERIA

5.1 Safety-related RCB radiation doors that are described in Table 3.8-18 as swing doors function as designed (see Section 3.8.3.1.13 and Section 12.3.1.8.1.~~Safety-related RCB radiation doors function as designed and described in Section 6.2~~

5.1.1 The opening torque is less than the maximum limit specified in Technical Specification Surveillance 3.6.10.2 (see Technical Specification Table 3.6.10-1).

5.1.2 The opening torque is less than the maximum limit specified in Section 3.8.3.1.13.

5.2 Non-safety-related RCB radiation doors that are described in Table 3.8-18 as swing doors function as designed (see Section 3.8.3.1.13 and Section 12.3.1.8.1).~~Non-safety RCB radiation doors function as designed and described in Section 6.2.~~

5.2.1 The opening torque is less than the maximum limit specified in Section 3.8.3.1.13.

5.3 Safety-related RCB doors with pressure relieving apertures function as designed and described in ~~Section 6.2~~Section 3.8.3.1.13.

5.4 Non-safety RCB doors with pressure relieving apertures function as designed and described in ~~Section 6.2~~Section 3.8.3.1.13.

5.5 RCB watertight doors function as designed and described in Section 3.8.3.1.13.

5.6 Non-safety RCB radiation doors, that are described in Table 3.8-18 as motor operated rolling doors, function as designed (see Section 3.8.3.1.13 and Section 12.3.1.8.1.

14.2.12.5.3 Seal Water Supply System (Test #045)

1.0 OBJECTIVE

1.1 To demonstrate the ability of seal water supply system to supply filtered seal water under normal plant operations.

1.2 To verify that the seal water supply system provides adequate sealing water to systems containing radioactive fluids.

1.3 To verify that the seal water supply system provides adequate sealing water to the gaseous waste processing and operational chilled water system.

2.0 PREREQUISITES

2.1 Construction activities on the seal water supply system have been completed.

2.2 The seal water supply system instrumentation has been calibrated and is functional for performance of the following test.

2.3 Support system required for operation of the seal water supply system is complete and functional.

2.4 Test instrumentation available and calibrated.

2.5 The seal water supply system suction supply is being maintained at the water level (pressure) specified in the design documents.

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CHAPTER 12 Radiation Protection			
SRP Criterion	**Description** **(AC – Acceptance Criteria Requirement, SAC – Specific SRP Acceptance Criteria)**	**U.S. EPR Assessment**	**FSAR Section(s)**
	they relate to persons involved in licensed activities making every reasonable effort to maintain radiation exposures ALARA		
12.3-12.4-AC-02	**10 CFR 20.1201**, as it relates to occupational dose limits for adults.	Y	12.1.2
		N/A-COL	12.1.3 12.5
12.3-12.4-AC-03	**10 CFR 20.1201**, **10 CFR 20.1202**, **10 CFR 20.1203**, **10 CFR 20.1204**, **10 CFR 20.1701**, and **10 CFR 20.1702**, as they relate to design features, ventilation, monitoring, and dose assessment for controlling the intake of radioactive materials	Y	12.3.3 12.3.4
		N/A-COL	12.5
12.3-12.4-AC-04	**10 CFR 20.1301** and **10 CFR 20.1302**, as they relate to the facility design features that impact the radiation exposure to a member of the public from noneffluent sources associated with normal operations and anticipated operational occurrences	Y	12.3.5.3
		N/A-COL	12.5
12.3-12.4-AC-05	**10 CFR 20.1406**, as it relates to the design features that will facilitate eventual decommissioning and minimize, to the extent practicable, the contamination of the facility and the generation of radioactive waste	Y	12.3.6
12.3-12.4-AC-06	**10 CFR 20.1601**, **10 CFR 20.1602**, **10 CFR 20.1901**, **10 CFR 20.1902**, **10 CFR 20.1903**, and **10 CFR 20.1904**, as they relate to the identification of potential sources of radiation exposure and the controls of access to and work within areas of the facility with a high potential for radiation exposure	Y	12.3.1.8
		N/A-COL	12.5 3.8.3.1.13
12.3-12.4-AC-07	**10 CFR 20.1801**, as it relates to securing licensed materials against unauthorized removal from the place of storage	N/A-COL	12.5
12.3-12.4-AC-08	**General Design Criterion (GDC)19** found in Appendix A to 10 CFR Part	Y	12.3.5.2