Response to

Request for Additional Information No. 43 Supplement 1, Revision 0

7/30/2008

U. S. EPR Standard Design Certification
AREVA NP Inc.
Docket No. 52-020
SRP Section: 14.03.08 - Radiation Protection Inspections, Tests, Analyses, and Acceptance Criteria
Application Section: Tier 2 Section 14.3 and Tier 1 Section 2.0
CHPB Branch

Question 14.03.08-1:

FSAR, Section 14.3 states that the EPR design complies with 10 CFR 52.47(b)(1). However, in the area of Radiation Protection, Tier 1 of the EPR FSAR is not consistent with the guidance provided in Regulatory Guide RG 1.206, "Combined License Applications for Nuclear Power Plants", Part C.II.1, "Inspections, Test, Analyses, and Acceptance Criteria" as to what is acceptable content of ITAAC and Tier 1 information for meeting the requirements of 10 CFR 52.80(a). RG 1.206 Part C.II.1 states that a COL applicant should ensure they have ITAAC and Tier 1 information for those SSC features and functions that are necessary to satisfy the NRC's regulations in 10 CFR Part 20, "Standards for Protection Against Radiation." Therefore those aspects of the EPR design which demonstrate compliance with the regulations in 10 CFR 20 (such as SSCs that provide radiation shielding, confinement or containment of radioactivity, ventilation of airborne contamination, and monitoring of radiation or radioactivity concentration for normal operations and during accidents) must have ITAAC and Tier 1 information associated with them in order for each COL applicant referencing the design to be in compliance with 10 CFR 52.80(a).

(1) In accordance with 10 CFR 52.47(b)(1) and Regulatory Guide 1.206 Part C.II.1, provide:

(a) ITAAC to verify the location and operability (including initiation of protective action, response to radiation, power source, seismic qualification, environmental qualification, and MCR alarms and indications) of safety-related radiation detection equipment described in Table 3.11-1, Tier 2 of the FSAR, Revision 0, List of Environmentally Qualified Electrical/I&C Equipment.

(b) ITAAC to verify the adequacy of as-built walls, structures, and buildings as radiation shields, as applicable. Provide ITAAC that verifies, through inspection and/or calculation that the as-built structures, systems and components, result in dose rates in rooms and areas of the plant that are consistent with the planned access requirements described in Section 12.3.2.3, Tier 2, Radiation Zoning. Include rooms, corridors, and operating areas located in the Reactor Building, Safeguards Buildings, Fuel Building, the Nuclear Auxiliary Building, and the Radwaste Building.

(c) (i) ITAAC to verify adequate containment of airborne radioactive materials through design of ventilation and airborne monitoring systems consistent with personnel access needs. (ii) Location and radiation response of each airborne radioactivity monitor identified in Table 12.3-4, FSAR Tier 2, Airborne Radioactivity Detector Parameters, should be verified, along with local and MCR indication and alarm capability, as applicable. (iii) Also provide ITAAC for the plant ventilation system in accordance with the guidance provided in Regulatory Guide 8.8 and Section 12.3-4 of the Standard Review Plan (NUREG-0800).

(d) ITAAC to verify the location and operability of all Area Radiation Monitors (ARMs) listed in Table 12.3-3, FSAR Tier 2, Radiation Monitor Detector Parameters. ITAAC should verify the local audible and visual alarm capability of each ARM (as applicable), MCR indications and alarms, and each ARM channel's response to radiation.

(e) Tier 1 descriptions for SSCs described in parts (a) – (d) of this question, including those that are safety-related, provide radiation shielding, confinement or containment

of radioactivity, ventilation of airborne contamination, and monitoring of radiation (or radioactivity concentration) for normal operations and during accidents. For those radiation monitors that have accident functions (e.g. the in-containment high radiation monitor, the Fuel Building ventilation monitor, etc), describe the safety related function(s) which applies to that particular monitor.

(2) Revise Section 14.3 of the FSAR to be consistent with the revised ITAAC and Tier 1 information.

Response to Question 14.03.08-1:

Part (1):

(a) Inspection, test, analysis, and acceptance criteria (ITAAC) have been added to the following U.S. EPR FSAR Tier 1 sections as shown on the enclosed markup to address safety-related radiation monitors:

- U.S. EPR FSAR Tier 1, Section 2.4.22 for containment high range dose rate monitors.
- U.S. EPR FSAR Tier 1, Section 2.9.4 for the MCR ventilation intake radioactivity monitors.

In reviewing U.S. EPR FSAR Tier 2, Table 3.11-1—List of Environmentally Qualified Electrical/I&C Equipment, safety-related radiation monitors were identified to be included in Table 3.11-1 and Tier 1. These monitors have been added to the U.S. EPR FSAR as shown on the enclosed markup. These monitors are two containment high range dose rate monitors, two main control room (MCR) vent duct gamma black boxes (BBX), and two containment high range dose rate BBX. Also, two radiation monitors listed in Table 3.11-1 are no longer safety-related and will be removed from Table 3.11-1.

(b) A response to this question will be provided by February 27, 2009.

(c) (i) and (c) (iii) U.S. EPR FSAR contains ITAAC in the following Tier 1 sections for ventilation systems providing containment of airborne radioactive materials:

- U.S. EPR FSAR Tier 1, Section 2.6.6 - Protection of personnel in the Safeguard Building (SB) controlled area (other than MCR).
- U.S. EPR FSAR Tier 1, Section 2.6.1 - Protection of personnel in the MCR.
- U.S. EPR FSAR Tier 1, Section 2.6.3 - Maintaining negative pressure in the Reactor Building (RB) annulus.
- U.S. EPR FSAR Tier 1, Section 2.6.4 - Protection of personnel in the Fuel Building (FB).
- U.S. EPR FSAR Tier 1, Section 2.6.8 - Protection of personnel in the Containment Building.

(d) and (c) (ii) Safety-significant radiation monitors have been added to U.S. EPR FSAR Tier 1 as described in the response to Part (1)(a). Other radiation monitors did not meet the screening criteria for Tier 1.

Items associated with 10 CFR Part 20 were reviewed during the development of U.S. EPR FSAR Tier 1. Except for those items identified in Part (1)(a), the equipment listed in U.S. EPR FSAR Tier 2, Table 12.3-3—Radiation Monitor Detector Parameters and Table 12.3-4—Airborne Radioactivity Detector Parameters did not meet the screening criteria checklists derived from Standard Review Plan (SRP) 14.3 (March 2007), nor was this equipment identified as safety-significant by the expert review panel. Therefore, using a graded approach, this equipment was not included in U.S. EPR FSAR Tier 1 as discussed below.

AREVA NP developed U.S. EPR FSAR Tier 1 using guidance from previous certified designs and from SRP 14.3. Information in Tier 1 was developed using a graded approach based on the safety-significance of structures, systems, and components (SSC). SSC, including those for radiation protection, were screened for safety-significant design features and included in Tier 1 as appropriate. Some radiation protection items did not meet the criteria for Tier 1; however, these radiation protection items are still required for the U.S. EPR and are described in Tier 2.

The final safety evaluation report (FSER) for the certified design System 80+ provides insights into the fundamentals of Tier 1 and ITAAC. The FSER for the System 80+, NUREG-1462, describes using a graded approach to Tier 1 information and focusing on the safety significance of SSC. Specifically, NUREG-1462, Section 14.3 contains the following statements (bold added for emphasis) about certified design material (CDM):

- "The staff also utilized a **graded approach** to the level of detail in its review of the CDM based on the **safety significance** of the SSCs."
- "The intent of the CDM is to ensure that the key characteristics and performance requirements of **safety-significant** SSCs are implemented in an as-built facility referencing the certified design."
- "…considerable **judgment** was inherent in the approval of the final material for the CDM."
- "The level of design detail in any single system is proportional to the **safety significance** of the system."

The FSER for the certified design AP600, NUREG-1512, provides guidance consistent with the System 80+ guidance. Specifically, NUREG-1512, Sections 14.3.1 and 14.3.2 contains the following statements (bold added for emphasis):

- "To be certified, the Tier 1 information must verify the complete scope of the design, and the amount of information in the Tier 1 design descriptions is **proportional to the safety significance** of the structures and systems in the standard design."
- "The NRC prepared SRP Section 14.3 **on the basis of experience** gained in the review of Tier 1 information for the evolutionary designs (ABWR and System 80+) that were certified in 1997."
- "In section 2.0 of Tier 1, Westinghouse provided a Tier 1 entry (subsection) for every system in the AP600 design, thereby meeting the requirement to verify the full scope of the standard design. In addition, although Westinghouse provided a Tier 1 entry for every system that is either fully or partially within the scope of the AP600 standard design, the amount of information in a given subsection is **proportional to the safety significance** of the particular system."

The FSER for the AP1000, NUREG-1793, is an extension of and is consistent with NUREG-1512. For example, NUREG-1793 contains the statement: "The amount of information in the Tier 1 design descriptions is proportional to the safety significance of the structures and systems in the standard plant design."

A significant portion of the above wording from the cited NUREGs was incorporated into SRP 14.3 (draft, April 1996). For example, SRP 14.3, Appendix A, Section IV.B.1 contains the following statements (bold added for emphasis):

- "The design descriptions (DD) address the most **safety-significant** aspects of each of the systems of the design, and were derived from the detailed design information contained in Tier 2."
- "This **graded approach** recognizes that although many aspects of the design are important to safety, the level of design detail in Tier 1 and verification of the key design features and performance characteristics should be commensurate with the **significance of the safety** functions to be performed."

Using a graded approach for Tier 1 and focusing on the safety significance of SSC was also included in SRP 14.3 (March 2007). For example, SRP 14.3 and 14.3.8 contains the following statements (bold added for emphasis):

- "The type of information and the level of detail in Tier 1 are based on a **graded approach** commensurate with the **safety significance** of the structures, systems, and components (SSCs) for the design."
- "While the Tier 1 information must address the complete scope of the design to be certified, the amount of design information is proportional to the **safety-significance** of the structures and systems of the design."
- "The level of detail in Tier 1 is governed by a **graded approach** to the SSCs of the design, based on the **safety significance** of the functions they perform."
- "The reviewer should ensure that Tier 1 identifies and describes, commensurate with their safety significance, those SSCs that provide radiation shielding, confinement or containment of radioactivity, ventilation of airborne contamination, or radiation (or radioactivity concentration) monitoring for normal operations and during accidents."

After reviewing the guidance provided in NUREG-1462, NUREG-1512, NUREG-1793, SRP 14.3 (April 1996), and SRP 14.3 (March 2007), AREVA NP concludes that the U.S. EPR FSAR Tier 1 should contain two types of information: safety-significant information identified in the SRP 14.3 checklists, and safety-significant information credited in key safety and integrated plant analyses (SRP 14.3, page 14.3-21). AREVA NP includes safety significant information on checklists used to develop U.S. EPR FSAR Tier 1 and establishes an expert panel review process to identify safety-significant features credited in key safety and integrated plant analyses. Results of the expert panel reviews are contained in U.S. EPR FSAR Tier 2, Section 14.3 and Table 14.3-1—Design Basis Accident Analysis (Safety-Significant Features) through Table 14.3-7—Licensing (Safety-Significant Features).

AREVA NP also considered that design commitments are for the lifetime of the facility when developing Tier 1 material. As explained in SRP 14.3 (March 2007), Appendix A, "design descriptions serve as binding requirements for the lifetime of a facility to assure that the

plant does not deviate from the certified design." Therefore, design features that could be changed by a 50.59-type process were not included in Tier 1.

Regulatory Guide (RG) 1.206, Part C.II.1 provides guidance that is consistent with NUREG-1462, NUREG-1512, NUREG-1793, SRP 14.3 (April 1996), and SRP 14.3 (March 2007) by using a graded approach to ITAAC based on the safety-significance of SSC. For example, RG 1.206, Part C.II.1 states that, "The type of information and the level of detail included in the ITAAC for each structure and system are based on a **graded approach** that is **commensurate with the safety-significance** of the facility's SSCs." RG 1.206 also specifies additional items that a COL applicant should consider when using a graded approach. Specifically, RG 1.206 states that "The COL applicant's development of proposed ITAAC **should consider the following factors**" to "Ensure that the ITAAC include SSCs for which the features or functions are necessary to satisfy the NRC's regulations in 10 CFR Part 20 'Standards for Protection Against Radiation,' 10 CFR Part 50, 10 CFR Part 73, 'Physical Protection of Plants and Materials,' or 10 CFR Part 100.'" As explained in U.S. EPR FSAR Tier 2, Section 14.3.2, the selection process used for the U.S. EPR FSAR Tier 1 "provides those **safety significant** features credited to comply with 10 CFR Parts 20, 50, 52, 73, or 100." (Note: bold has been added in the above quotes for emphasis.)

In summary, safety-significant radiation monitors have been added to U.S. EPR FSAR Tier 1 as described in the response to Part (1)(a). Other radiation monitors listed in (d) and (c) (ii) did not meet the screening criteria for Tier 1.

(e) U.S. EPR FSAR Tier 1 will be revised as described in the response to part (a) above and as indicated on the enclosed FSAR markup.

Part (2)

No changes to U.S. EPR FSAR Tier 2, Section 14.3 are required for the above responses to parts (1)(a), (c), (d), and (e).

FSAR Impact:

U.S. EPR FSAR Tier 1, Sections 2.4.22 and 2.9.4 will be revised as described in the response and indicated on the enclosed markup.

U.S. EPR FSAR Tier 2, Table 3.11-1 will be revised as described in the response and indicated on the enclosed markup.

U.S. EPR Final Safety Analysis Report Markups

14.03.08-1 (1a & 1e)

2.4.22 Radiation Monitoring System

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

1.0 Description

The radiation monitoring system provides surveillance of ionizing radiation comprising all provisions dealing with the occurrence of ionizing radiation within the plant and measures related to the health control of personnel who could be exposed to radiation.

The radiation monitoring system provides the following safety-related function:

- Provides surveillance of ionizing radiation and provides a signal that initiates Reactor Building air filtration isolation.

The radiation monitoring system provides the following non-safety-related function:

- Provides signals for the display of non-safety related radiological conditions.

2.0 Arrangement

2.1 The location of the radiation monitoring system equipment is as listed in Table 2.4.22-1—Radiation Monitoring System Equipment Mechanical Design.

3.0 Mechanical Design Features

3.1 Equipment identified as Seismic Category I in Table 2.4.22-1 can withstand a design basis seismic load without loss of the function listed in Table 2.4.22-1.

4.0 Displays and Controls

4.1 Each monitor listed in Table 2.4.22-1 initiates a MCR alarm when radiation level exceeds a preset limit.

4.2 Each channel for monitors listed in Table 2.4.22-1 provides an indication of radiation level.

5.0 Electrical Power Design Features

5.1 The components designated as Class 1E in Table 2.4.22-2—Radiation Monitoring System Equipment I&C and Electrical Design are powered from a Class 1E division in a normal or alternate feed condition.

6.0 Environmental Qualifications

6.1 Electrical drivers for the equipment listed in Table 2.4.22-2 for harsh environment can perform the safety function in Table 2.4.22-1 following exposure to the design basis environments for the time required.

7.0 Equipment and System Performance

7.1 Containment High Range Dose Rate Monitors listed in Table 2.4.22-1 initiate Reactor Building air filtration isolation upon receipt of high radioactivity levels.

8.0 Inspections, Tests, Analyses, and Acceptance Criteria

The inspection, tests, analyses, and acceptance criteria (ITAAC) for the Radiation Monitoring System are specified in Table 2.4.22-3—Radiation Monitoring System Inspections, Tests, Analyses, and Acceptance Criteria.

Table 2.4.22-1—Radiation Monitoring System Equipment Mechanical Design

Equipment Description	Equipment Tag Number (1)	Equipment Location	Function	Seismic Category
Containment High Range Dose Rate Monitor	JYK15CR101	Reactor Building	Monitor Post Accident Radioactivity Levels	I
Containment High Range Dose Rate Monitor	JYK15CR102	Reactor Building	Monitor Post Accident Radioactivity Levels	I
Containment High Range Dose Rate Monitor	JYK15CR103	Reactor Building	Monitor Post Accident Radioactivity Levels	I
Containment High Range Dose Rate Monitor	JYK28CR101	Reactor Building	Monitor Post Accident Radioactivity Levels	I

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

Table 2.4.22-2—Radiation Monitoring System Equipment I&C and Electrical Design

Equipment Description	Equipment Tag Number (1)	Equipment Location	IEEE Class 1E Source	EQ – Harsh Env.	MCR/RSS Displays
Containment High Range Dose Rate Monitor	JYK15CR101	Reactor Building	Yes	Yes	Radiation Alarm/ Radiation Alarm
Containment High Range Dose Rate Monitor	JYK15CR102	Reactor Building	Yes	Yes	Radiation Alarm/ Radiation Alarm
Containment High Range Dose Rate Monitor	JYK15CR103	Reactor Building	Yes	Yes	Radiation Alarm/ Radiation Alarm
Containment High Range Dose Rate Monitor	JYK28CR101	Reactor Building	Yes	Yes	Radiation Alarm/ Radiation Alarm

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

14.03.08-1 (1a)

Table 2.4.22-3—Radiation Monitoring System Inspections, Tests, Analyses, and Acceptance Criteria
(2 Sheets)

Commitment Wording		Inspection, Test or Analysis	Acceptance Criteria
2.1	The location of the radiation monitoring system equipment is as listed in Table 2.4.22-1.	An inspection will be performed of the location of the equipment listed in Table 2.4.22-1.	The equipment listed in Table 2.4.22-1is located as listed in Table 2.4.22-1.
3.1	Equipment identified as Seismic Category I in Table 2.4.22-1can withstand a design basis seismic load without loss of function as listed in Table 2.4.22-1.	a) Inspections will be performed of the equipment identified as Seismic Category I in Table 2.4.22-1. b) Type tests, test, analyses, or a combination of tests and analyses will be performed on the equipment designated as Seismic Category I in Table 2.4.22-1.	a) The equipment designated as Seismic Category I in Table 2.4.22-1 is installed as designed. b) The equipment designated as Seismic Category I in Table 2.4.22-1 can withstand a design basis seismic load without loss of function.
4.1	Each monitor listed in Table 2.4.22-1 initiates a MCR alarm when radiation level exceeds a preset limit.	A test will be performed to verify that the MCR alarm is initiated when radiation level exceeds a preset limit.	The monitors listed in Table 2.4.22-1 initiate MCR alarm when a radiation level exceeds a preset limit.
4.2	Each channel for monitors listed in Table 2.4.22-1 provides an indication of radiation level.	A test will be performed to verify that each channel responds to radiation.	The monitors listed in Table 2.4.22-1 indicate radiation levels for each channel.
5.1	The components designed as Class 1E in Table 2.4.22-2 are powered from a Class 1E division in a normal or alternate feed condition.	a) Testing will be performed for components designated as Class 1E in Table 2.4.22-2 by providing a test signal in each normally aligned division. b) Testing will be performed for components designated as Class 1E in Table 2.4.22-2 by providing a test signal in each division with the alternate feed aligned to the divisional pair.	a) The test signal provided in the normally aligned division is present at the respective Class 1E component identified in Table 2.4.22-2. b) The test signal provided in each division with the alternate feed aligned to the divisional pair is present at the respective Class 1E component identified in Table 2.4.22-2.
6.1	Electrical drivers for equipment listed in Table 2.4.22-2 for harsh environment can perform the safety function in Table 2.4.22-1 following exposure to the design basis environments for the time	a) Type tests, tests, analyses or a combination of tests and analyses will be performed to demonstrate the ability of the equipment listed for harsh environment in Table 2.4.22-2 to perform the function listed	a) The Class 1E equipment listed for harsh environment in Table 2.4.22-2 can perform the function listed in Tables 2.4.22-1 before and during design basis

14.03.08-1 (1a)

Table 2.4.22-3—Radiation Monitoring System Inspections, Tests, Analyses, and Acceptance Criteria
(2 Sheets)

Commitment Wording		Inspection, Test or Analysis	Acceptance Criteria
	required.	in Table 2.4.22-1 for the environmental conditions that could occur before and during a design basis accident. b) For equipment listed for harsh environment in Table 2.4.22-2, an inspection will be performed of the as-installed Class 1E equipment and the associated wiring, cables and terminations.	accidents for the time required to perform the listed function. b) Inspection concludes that the as-installed Class 1E equipment and associated wiring, cables, and terminations as listed in Table 2.4.22-2 for harsh environment conform with the design.
7.1	Containment High Range Dose Rate Monitors listed in Table 2.4.22-1 initiates Reactor Building air filtration isolation upon receipt of high radioactivity levels.	A test will be performed to verify that the Reactor Building air filtration is isolated upon radiation levels exceeding a preset limit.	Containment High Range Dose Rate Monitors listed in Table 2.4.22-1 initiate Reactor Building air filtration isolation when radiation level exceeds a preset limit.

Next File

2.9.4 Sampling Activity Monitoring System

1.0 Description

The sampling activity monitoring system provides the following safety-related function:

- Provides a radioactivity indication that initiates isolation of the main control room (MCR) ventilation intake.

2.0 Arrangement

2.1 The functional arrangement of the sampling activity monitoring system is shown in Figure 2.9.4-1—Sampling Activity Monitoring System Functional Arrangement.

2.2 The location of the sampling activity monitoring system equipment is as listed in Table 2.9.4-1—Sampling Activity Monitoring System Equipment Mechanical Design.

3.0 Mechanical Design Features

14.03.08-1 (1a & 1e)

3.1 Equipment identified as Seismic Category I in Table 2.9.4-1 can withstand a design basis seismic load without loss of function as listed in Table 2.9.4-1.

4.0 Displays and Controls

4.1 The radioactivity monitors listed in Table 2.9.4-1 initiate a MCR alarm when radiation level exceeds a preset limit.

5.0 Electrical Power Design Features

5.1 The components designated as Class 1E in Table 2.9.4-2—Sampling Activity Monitoring System Equipment I&C and Electrical Design are powered from a Class 1E division in a normal or alternate feed condition.

6.0 Equipment and System Performance

6.1 MCR Ventilation Intake Radioactivity Monitors initiate isolation of the MCR ventilation and initiation of supplemental filtration upon receipt of high radioactivity levels.

7.0 Inspections, Tests, Analyses, and Acceptance Criteria

Table 2.9.4-3—Sampling Activity Monitoring System Inspections, Tests, Analyses, and Acceptance Criteria specifies the inspections, tests, analyses, and acceptance criteria for the sampling activity monitoring system.

14.03.08-1 (1a & 1e)

Table 2.9.4-3—Sampling Activity Monitoring System Inspections, Tests, Analyses, and Acceptance Criteria

(2 Sheets) ← 14.03.08-1 (1a)

Commitment Wording		Inspection, Test or Analysis	Acceptance Criteria
2.1	The functional arrangement of the sampling activity monitoring system is as shown on Figure 2.9.4-1.	Inspections of the as-built system as shown on Figure 2.9.4-1 will be conducted.	The as-built sampling activity monitoring system conforms with the functional arrangement as shown in Figure 2.9.4-1.
2.2	The location of the sampling activity monitoring system equipment is as listed in Table 2.9.4-1.	An inspection will be performed of the location of the equipment listed in Table 2.9.4-1.	The equipment listed in Table 2.9.4-1 is located as listed in Table 2.9.4-1.
3.1	Equipment identified as Seismic Category I in Table 2.9.4-1 can withstand a design basis seismic load without loss of function as listed in Table 2.9.4-1. 14.03.08-1 (1a) ↓	a. Inspections will be performed of the equipment identified as Seismic Category I in Table 2.9.4-1. b. Type tests, tests, analyses, or a combination of tests and analyses will be performed on the equipment designated as Seismic Category I in Table 2.9.4-1.	a. The equipment designated as Seismic Category I in Table 2.9.4-1 is installed as designed. b. The equipment designated as Seismic Category I in Table 2.9.4-1 can withstand a design basis seismic load without loss of function.
4.1	Each monitor listed in Table 2.9.4-1 initiates a MCR alarm when the radiation level exceeds a preset limit.	A test will be performed to verify that the MCR alarm is initiated when radiation level exceeds a preset limit.	Each monitor listed in Table 2.9.4-1 initiates a MCR alarm when the radiation level exceeds a preset limit.
45.1	The components designated as Class 1E in Table 2.9.4-2 are powered from a Class 1E division in a normal or alternate feed condition.	a. Testing will be performed for components designated as Class 1E in Table 2.9.4-2 by providing a test signal in each normally aligned division. b. Testing will be performed for components designated as Class 1E in Table 2.9.4-2 by providing a test signal in each division with the alternate feed aligned to the divisional pair.	a. The test signal provided in the normally aligned division is present at the respective Class 1E component identified in Table 2.9.4-2. b. The test signal provided in each division with the alternate feed aligned to the divisional pair is present at the respective Class 1E component identified in Table 2.9.4-2.

14.03.08-1 (1a)

Table 2.9.4-3—Sampling Activity Monitoring System Inspections, Tests, Analyses, and Acceptance Criteria

(2 Sheets)

Commitment Wording		Inspection, Test or Analysis	Acceptance Criteria
6.1	MCR Ventilation Intake Radioactivity Monitors listed in Table 2.9.4-1 initiate isolation of the MCR ventilation and initiation of supplemental filtration upon receipt of high radioactivity levels.	A test will be performed to verify that the MCR ventilation isolation and supplemental filtration is initiated upon radiation levels exceeding a preset limit.	The monitors listed in Table 2.9.4-1 initiate MCR ventilation isolation and supplemental MCR filtration when radiation level exceeds a preset limit.

Next File

Table 3.11-1—List of Environmentally Qualified Electrical/I&C Equipment
(Sheet 69 of 102)

Name Tag (Equipment Description)	Tag Number	Local Area KKS ID (Room Location)	EQ Environment (Note 1)	Radiation Environment Zone (Note 2)	EQ Designated Function (Note 3)	Safety Class (Note 4)	EQ Program Designation (Note 5)
H2 CONC *UJA*	30JMU51CQ003	31UJH10011	M	H	PAM SII	NS-AQ	Y(2) Y(5)
H2 CONC *UJA*	30JMU51CQ004	31UJH10011	M	H	PAM SII	NS-AQ	Y(2) Y(5)
MOISTURE SENSOR	30JMU51CQ010	31UJH10010	M	H	PAM SII	NS-AQ	Y(2) Y(5)
MOIST CONC *UJA*	30JMU51CQ011	31UJH10011	M	H	PAM SII	NS-AQ	Y(2) Y(5)
MOIST CONC *UJA*	30JMU51CQ012	31UJH10011	M	H	PAM SII	NS-AQ	Y(2) Y(5)
MOIST CONC *UJA*	30JMU51CQ013	31UJH10011	M	H	PAM SII	NS-AQ	Y(2) Y(5)
MOIST CONC *UJA*	30JMU51CQ014	31UJH10011	M	H	PAM SII	NS-AQ	Y(2) Y(5)
H2 SENSOR	30JMU51CQ020	31UJH10010	M	H	PAM SII	NS-AQ	Y(2) Y(5)
T CABINET HEATING	30JMU51CT010	31UJH10010	M	H	PAM SII	NS-AQ	Y(2) Y(5)
T CABINET HEATING	30JMU51CT011	31UJH10010	M	H	PAM SII	NS-AQ	Y(2) Y(5)
T AT H2 SENSOR	30JMU51CT012	31UJH10010	M	H	PAM SII	NS-AQ	Y(2) Y(5)
T AT TEST VESSEL	30JMU51CT013	31UJH10010	M	H	PAM SII	NS-AQ	Y(2) Y(5)
H2 ISOLATION VALVE UJA	30JMU50AA001	30UJA11016	H	H	PAM SI	S 1E EMC	Y(1) Y(5)
H2 ISOLATION VALVE UJH	30JMU50AA002	34UJH10011	M	H	PAM SI	S 1E EMC	Y(2) Y(5) Y(6)
H2 ISOLATION VALVE UJA	30JMU50AA003	30UJA11016	H	H	PAM SI	S 1E EMC	Y(1) Y(5)
H2 ISOLATION VALVE UJH	30JMU50AA004	34UJH10011	M	H	PAM SI	S 1E EMC	Y(2) Y(5) Y(6)
H2 ISOLATION VALVE UJA	30JMU50AA005	30UJA11016	H	H	PAM SI	S 1E EMC	Y(1) Y(5)
H2 ISOLATION VALVE UJH	30JMU50AA006	34UJH10011	M	H	PAM SI	S 1E EMC	Y(2) Y(5) Y(6)
H2 ISOLATION VALVE UJA	30JMU50AA007	30UJA11016	H	H	PAM SI	S 1E EMC	Y(1) Y(5)
H2 ISOLATION VALVE UJH	30JMU50AA008	34UJH10011	M	H	PAM SI	S 1E EMC	Y(2) Y(5) Y(6)
H2 ISOLATION VALVE UJH	30JMU50AA009	34UJH10011	M	H	PAM SI	S 1E EMC	Y(2) Y(5) Y(6)
H2 ISOLATION VALVE UJA	30JMU50AA010	30UJA11016	H	H	PAM SI	S 1E EMC	Y(1) Y(5)
H2 ISOLATION VALVE UJA	30JMU51AA011	30UJA11013	H	H	PAM SI	S 1E EMC	Y(1) Y(5)
H2 ISOLATION VALVE UJH	30JMU51AA012	31UJH10011	M	H	PAM SI	S 1E EMC	Y(2) Y(5) Y(6)
H2 ISOLATION VALVE UJA	30JMU51AA013	30UJA11013	H	H	PAM SI	S 1E EMC	Y(1) Y(5)
H2 ISOLATION VALVE UJH	30JMU51AA014	31UJH10011	M	H	PAM SI	S 1E EMC	Y(2) Y(5) Y(6)
H2 ISOLATION VALVE UJA	30JMU51AA015	30UJA11013	H	H	PAM SI	S 1E EMC	Y(1) Y(5)
H2 ISOLATION VALVE UJH	30JMU51AA016	31UJH10011	M	H	PAM SI	S 1E EMC	Y(2) Y(5) Y(6)
H2 ISOLATION VALVE UJA	30JMU51AA017	30UJA11013	H	H	PAM SI	S 1E EMC	Y(1) Y(5)
H2 ISOLATION VALVE UJH	30JMU51AA018	31UJH10011	M	H	PAM SI	S 1E EMC	Y(2) Y(5) Y(6)
H2 ISOLATION VALVE UJH	30JMU51AA019	31UJH10011	M	H	PAM SI	S 1E EMC	Y(2) Y(5) Y(6)
H2 ISOLATION VALVE UJA	30JMU51AA020	30UJA11013	H	H	PAM SI	S 1E EMC	Y(1) Y(5)
Radiation Monitoring System (RMS)							
BBX Main Control Room Vent Duct Gamma	30JYK00GH061	32UJK31018	M	M	SI	S 1E EMC	Y (5) Y (6)
BBX Main Control Room Vent Duct Gamma	30JYK00GH062	33UJK31018	M	M	SI	S 1E EMC	Y (5) Y (6)
BBX Main Control Room Vent Duct Gamma	30JYK00GH109	32UJK31018	M	M	SI	S 1E EMC	Y (5)
BBX Main Control Room Vent Duct Gamma	30JYK00GH110	32UJK31018	M	M	SI	S 1E EMC	Y (5)
BBX Containment High Range Dose Rate	30JYK00GH111	30UFA29090	M	H	PAM SI	S 1E EMC	Y (5)
BBX Containment High Range Dose Rate	30JYK00GH112	30UFA29090	M	H	PAM SI	S 1E EMC	Y (5)
BBX Containment High Range Dose Rate	30JYK00GH007	30UFA29090	M	H	PAM SI	S 1E EMC	Y (2) Y (5) Y (6)
BBX Containment High Range Dose Rate	30JYK00GH008	30UFA29090	M	H	PAM SI	S 1E EMC	Y (2) Y (5) Y (6)
~~BBX Fuel Bldg Ventilation System Gamma~~	~~30JYK00GH050~~	~~30UFA29045~~	~~M~~	~~H~~	~~ES SI~~	~~S 1E EMC~~	~~Y (2) Y (5) Y (6)~~
~~BBX Fuel Bldg Ventilation System Gamma~~	~~30JYK00GH051~~	~~30UFA29045~~	~~M~~	~~H~~	~~ES SI~~	~~S 1E EMC~~	~~Y (2) Y (5) Y (6)~~
Containment High Range Dose Rate Monitor	30JYK15CR101	30UJA29016	H	H	ES PAM SI	S 1E EMC	Y (1) Y (5)

14.03.08-1 (1a)

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Table 3.11-1—List of Environmentally Qualified Electrical/I&C Equipment
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14.03.08-1 (1a)

Name Tag (Equipment Description)	Tag Number	Local Area KKS ID (Room Location)	EQ Environment (Note 1)	Radiation Environment Zone (Note 2)	EQ Designated Function (Note 3)	Safety Class (Note 4)	EQ Program Designation (Note 5)
Containment High Range Dose Rate Monitor	30JYK28CR101	30UJA29016	H	H	ES PAM SI	S 1E EMC	Y (1) Y (5)
Containment High Range Dose Rate Monitor	30JYK15CR102	30UJA29016	H	H	ES PAM SI	S 1E EMC	Y(1) Y (5)
Containment High Range Dose Rate Monitor	30JYK15CR103	30UJA29016	H	H	ES PAM SI	S 1E EMC	Y(1) Y (5)
Radiation Monitoring Cabinet (Div 1)	30CLE20	31UJK18025	M	M	ES SI	S 1E EMC	Y (5) Y (6)
Radiation Monitoring Cabinet (Div 2)	30CLF20	32UJK18004	M	M	ES SI	S 1E EMC	Y (5) Y (6)
Radiation Monitoring Cabinet (Div 3)	30CLG20	33UJK18004	M	M	ES SI	S 1E EMC	Y (5) Y (6)
Radiation Monitoring Cabinet (Div 4)	30CLH20	34UJK18025	M	M	ES SI	S 1E EMC	Y (5) Y (6)
HVAC Systems							
Containment Building Ventilation System (CBVS)							
Elec Air Heater KLA 2 Tr 2 Filt	30KLA22AH005	30UFA24081	M	H	SII	NS-AQ EMC	Y (2) Y (5) Y (6)
KLA 2 Tr 2 Fan	30KLA22AN001	30UFA24085	M	H	SII	NS-AQ EMC	Y (2) Y (5) Y (6)
KLA Plen Sup Motor Bal Dmpr	30KLA30AA001	30UFA21065	M	H	SII	NS-AQ EMC	Y (2) Y (5) Y (6)
Motor Control Dmpr 1 to FB KLL	30KLA30AA004	30UFA21065	M	H	SII	NS-AQ EMC	Y (2) Y (5) Y (6)
Op Fl Motorized Control Damper Sup	30KLA30AA007	30UJA29013	H	H	SII	NS-AQ EMC	Y (1) Y (5)
Motor Control Dmpr 2 to FB KLL	30KLA30AA008	30UFA21065	M	H	SII	NS-AQ EMC	Y (2) Y (5) Y (6)
KLA 3 Plen Sup Fire Dmpr	30KLA30AA013	30UFA17065	M	H	SII	NS-AQ EMC	Y (2) Y (5) Y (6)
Fire Dmpr Plen Sup to FB KLL	30KLA30AA014	30UFA17065	M	H	SII	NS-AQ EMC	Y (2) Y (5) Y (6)
KLA 4 Eq Comp control dmpr	30KLA40AA004	30UJA18016	H	H	SII	NS-AQ EMC	Y (1) Y (5)
KLA 4 Eq Comp Iso Dmpr	30KLA40AA005	30UJA18016	H	H	SII	NS-AQ EMC	Y (1) Y (5)
KLA 4 Fire Damper UFA24095	30KLA40AA006	30UFA24095	M	H	SII	NS-AQ EMC	Y (2) Y (5) Y (6)
KLA 4 Sup Motor Louver Damper	30KLA40AA007	30UJA34015	H	H	SII	NS-AQ EMC	Y (1) Y (5)
KLA 5 Fire Dmpr Serv Comp Sup	30KLA50AA001	30UJA29015	H	H	SII	NS-AQ EMC	Y (1) Y (5)
KLA 5 Filter Train Upstream Iso Dmpr	30KLA50AA002	30UJA29022	H	H	SII	NS-AQ EMC	Y (1) Y (5)
KLA 5 Fire Dmpr Serv Comp Exh	30KLA50AA003	30UJA29015	H	H	SII	NS-AQ EMC	Y (1) Y (5)
KLA 5 Filter Train Downstream Iso Dmpr	30KLA50AA004	30UJA29022	H	H	SII	NS-AQ EMC	Y (1) Y (5)
KLA 5 Elec Heater	30KLA50AH001	30UJA29022	H	H	SII	NS-AQ EMC	Y (1) Y (5)
KLA 5 Tr 1 Fan	30KLA51AN001	30UJA29022	H	H	SII	NS-AQ EMC	Y (1) Y (5)
KLA 5 Tr 2 Fan	30KLA52AN001	30UJA29022	H	H	SII	NS-AQ EMC	Y (1) Y (5)
KLA 6 Rx Pit Suppy Fan 1	30KLA65AN001	30UJA15026	H	H	SI	S 1E EMC	Y (1) Y (5)
KLA 6 Rx Pit Suppy Fan 3	30KLA65AN002	30UJA15027	H	H	SI	S 1E EMC	Y (1) Y (5)
KLA 6 Rx Pit Supply Fan 2	30KLA66AN001	30UJA15026	H	H	SI	S 1E EMC	Y (1) Y (5)
KLA 6 Rx Pit Supply Fan 4	30KLA66AN002	30UJA15027	H	H	SI	S 1E EMC	Y (1) Y (5)
KLA 5 tech rm Fire Damper Sup	30KLA10AA004	30UJA29015	H	H	SII	NS-AQ EMC	Y (1) Y (5)
KLA1 Staircase Sup Fire Damp	30KLA10AA006	30UJA11020	H	H	SII	NS-AQ EMC	Y (1) Y (5)
KLA 1 Staircase Sup Branch Fire Dmpr	30KLA10AA007	30UJA07013	H	H	SII	NS-AQ EMC	Y (1) Y (5)
KLA 1 Staircase south Sup Fire Dmpr	30KLA10AA008	30UJA15010	H	H	SII	NS-AQ EMC	Y (1) Y (5)
KLA 1 Plen Sup Fire Damp	30KLA10AA012	30UFA21065	M	H	SII	NS-AQ EMC	Y (2) Y (5) Y (6)
KLA 2 Eq Comp Iso Valve	30KLA20AA004	30UJA23013	H	H	SII	NS-AQ EMC	Y (1) Y (5)
KLA 5 Tech rm Fire damper Exh	30KLA20AA007	30UJA29015	H	H	SII	NS-AQ EMC	Y (1) Y (5)
North Staircase Exh Fire Dmpr	30KLA20AA009	30UJA34011	H	H	SII	NS-AQ EMC	Y (1) Y (5)
South Staircase Exh Fire Dmpr	30KLA20AA010	30UJA29023	H	H	SII	NS-AQ EMC	Y (1) Y (5)
KLA 2 Fire Damp UFA24045	30KLA20AA011	30UFA24045	M	H	SII	NS-AQ EMC	Y (2) Y (5) Y (6)