

Response to

Request for Additional Information No.92 (969), Revision 0

10/9/2008

U. S. EPR Standard Design Certification

AREVA NP Inc.

Docket No. 52-020

SRP Section: 13.06 - Physical Security

Application Section: Tier 1, Chapter 3; Tier 2, Chapter 13.6; U.S. EPR Vital Equipment List

QUESTIONS for Reactor Security and Programs Branch (NSIR/DRP/RSPLB)

Question 13.06-1:

Tier 1, Chapter 3, Section 3.1.1: Provide descriptions of physical security features that have been considered and incorporated into the standard EPR design to protect against the design basis threats (DBT). Specifically, describe what and how security engineered systems and features, including configurations and layout of EPR foot print and access points, have been incorporated to provide, facilitate, or enhance capabilities to detection, assess, communicate, delay, and interrupt malevolent acts in accordance with adversarial characteristic associated with the DBT. The level of information in Tier I must be sufficient and stand alone to describe the standard security features incorporated into the EPR design.

Regulatory Basis: Subpart B of 10 CFR 52, § 52.47, requires that information submitted for a design certification must include performance requirements and design information sufficiently detailed to permit the preparation of acceptance and inspection requirements by the NRC, and procurement specifications and construction and installation specifications by an applicant. Title 10 CFR 52.48 requires the applications filed will be reviewed for compliance with the standards set out in 10 CFR Part 73. Title 10 CFR 73.1 requires that a COL applicant address or a licensee provide a high assurance of protection against the DBT. Currently, the EPR design certification application, Tier I, Chapter 3, "Non-System Based Design Descriptions and ITAAC discussed security "Design Features" and Table 3.1-1, "Inspection, Test, Analyses, and Acceptance Criteria (4 sheet)" discussed inspection, tests, and analysis and acceptance criteria for design features. Tier 2, FSAR Chapters 13 "Conduct of Operations" do not contain supporting technical detailed security design information for the standard EPR design that supports the Tier 1, Chapter 3, generic descriptions for security "Design Features," and associated ITAAC. Although not a specific regulatory requirement, the Commission draft policy statement published in Federal Register Notice 26349, dated May 9, 1998, expects design vendors to address security for new reactors early in the design stage. Therefore, generic security systems or features relied on for protection against the DBT should be incorporated into the EPR design to the extent possible as standard design and specifications. The security related hardware or credited design features must be described in Tier 2 FSAR (Chapter 13 or other appropriate FSAR chapters) or in a referenced technical report to support the described security ITAAC.

Note: The information addressing specific details related to security features will be safeguards information (SGI) and should be marked and protected in accordance with 10 CFR 73.21. The applicant should portion mark text in the response to request for information (RAI) as appropriate to identify SGI that reveals the specific details of security features incorporated in the EPR design. The RAI responses supplementing the DC Tier 1 document must be publicly available.

Response to Question 13.06-1:

A response to this question will be provided by December 5, 2008.

Question 13.06-2:

Tier 2, FSAR Chapter 13, Section 13.6: Provide detailed descriptions of design performance, specifications, and configurations that support the list of “Design Features” identified in Tier 1, Chapter 3, Section 3.1.1.

Include associated design basis, assumptions, and design requirements for physical protection systems for the EPR standard design. The reliability of systems incorporated should be addressed in the design basis and assumptions. Provide descriptions of analysis and evaluations in sufficient detail, where applicable, to support the design basis for security features incorporated in the standard EPR design. NRC guidance, “Nuclear Power Plant Security Assessment Format and Content Guide,” dated September 2007 should be considered and applied for establishing design basis for engineered physical protection features for the standard EPR design.

Regulatory Basis: Subpart B of 10 CFR 52, § 52.47, requires that information submitted for a design certification must include performance requirements and design information sufficiently detailed to permit the preparation of acceptance and inspection requirements by the NRC, and procurement specifications and construction and installation specifications by an applicant. Basis for the RAI is the same as previously stated in Question EPM eRAIWorkflow RAI #3238. In addition, NRC guidance, “Nuclear Power Plant Security Assessment Format and Content Guide,” dated September 2007 should be considered and applied for establishing design basis for engineered physical protection features for the standard EPR design, are not regulatory requirements and provides the applicant with guidance on methods or approaches that the NRC staff will find acceptable for demonstrating reliability and availability of protection and determination of adequate protection.

Note: The information addressing specific details related to security features will be safeguards information (SGI) and should be marked and protected in accordance with 10 CFR 73.21. The applicant should portion mark text in the response to request for information (RAI) as appropriate to identify SGI that reveals the specific details of security features incorporated in the EPR design. The RAI responses supplementing the DC Tier 1 document must be publicly available.

Response to Question 13.06-2:

A response to this question will be provided by December 5, 2008.

Question 13.06-3:

U.S. EPR Vital Equipment List: Describe mitigating systems considered in the event of a loss of offsite power for the development of the vital equipment list. Following a loss of offsite power (LOOP), a loss-of-coolant accident (LOCA) via the reactor coolant pump (RCP) seals can be prevented by providing seal injection via the chemical and volume control system (CVCS), providing thermal barrier cooling via the component cooling water system (CCWS), or engaging the standstill seal. How are these mitigating systems being considered as vital equipment?

Regulatory Basis: Subpart B of 10 CFR 52, § 52.47, requires that information submitted for a design certification must include performance requirements and design information sufficiently detailed to permit the preparation of acceptance and inspection requirements by the NRC, and procurement specifications and construction and installation specifications by an applicant. Title 10 CFR 52.48 requires the applications filed will be reviewed for compliance with the standards set out in 10 CFR Part 73. Title 10 CFR 73.1 requires that a COL applicant address or a licensee provide a high assurance of protection against the DBT. The evaluation and identification of vital equipment, and subsequent analysis to determined target sets, is required to establish a physical protection system that would protect against the DBT.

Note: The information addressing specific details related to security features will be safeguards information (SGI) and should be marked and protected in accordance with 10 CFR 73.21. The applicant should portion mark text in the response to request for information (RAI) as appropriate to identify SGI that reveals the specific details of security features incorporated in the EPR design. The RAI responses supplementing the DC Tier 1 document must be publicly available.

Response to Question 13.06-3:

A response to this question will be provided by December 5, 2008.

Question 13.06-4:

U.S. EPR Vital Equipment List: Justify excluding the chiller units from the vital equipment list, given that other safety chilled water system (SCWS) components are included. The failures of SCWS chiller units, both individually and by common cause, are identified as important in the U.S. EPR probabilistic risk assessment (PRA). Provide technical basis for not including the chiller units on the vital equipment list.

Regulatory Basis: Subpart B of 10 CFR 52, § 52.47, requires that information submitted for a design certification must include performance requirements and design information sufficiently detailed to permit the preparation of acceptance and inspection requirements by the NRC, and procurement specifications and construction and installation specifications by an applicant. Title 10 CFR 52.48 requires the applications filed will be reviewed for compliance with the standards set out in 10 CFR Part 73. Title 10 CFR 73.1 requires that a COL applicant address or a licensee provide a high assurance of protection against the DBT. The evaluation and identification of all vital equipment for the EPR design, and subsequent analysis to determined standard design target sets, is required to establish a physical protection system that would protect against the DBT.

Note: The information addressing specific details related to security features will be safeguards information (SGI) and should be marked and protected in accordance with 10 CFR 73.21. The applicant should portion mark text in the response to request for information (RAI) as appropriate to identify SGI that reveals the specific details of security features incorporated in the EPR design. The RAI responses supplementing the DC Tier 1 document must be publicly available.

Response to Question 13.06-4:

A response to this question will be provided by December 5, 2008.

Question 13.06-5:

U.S. EPR Vital Equipment List: Clarify the use of the term “HVAC” (heating, ventilation, and air conditioning) in the context specific of supporting systems for identifying vital equipment. The failures of various cooling systems (e.g., CCWS, essential service water system (ESWS), and SCWS) could lead to failures of the four-train equipment. Therefore, the “HVAC” term should be defined to include all relevant support systems for subsequent development of target sets requiring physical protection against postulated DBT scenarios or treated separately in target sets.

Regulatory Basis: Subpart B of 10 CFR 52, § 52.47, requires that information submitted for a design certification must include performance requirements and design information sufficiently detailed to permit the preparation of acceptance and inspection requirements by the NRC, and procurement specifications and construction and installation specifications by an applicant. Title 10 CFR 52.48 requires the applications filed will be reviewed for compliance with the standards set out in 10 CFR Part 73. Title 10 CFR 73.1 requires that a COL applicant address or a licensee provide a high assurance of protection against the DBT. The evaluation and identification of all vital equipment for the EPR design, and subsequent analysis to determined standard design target sets, is required to establish a physical protection system that would protect against the DBT.

Note: The information addressing specific details related to security features will be safeguards information (SGI) and should be marked and protected in accordance with 10 CFR 73.21. The applicant should portion mark text in the response to request for information (RAI) as appropriate to identify SGI that reveals the specific details of security features incorporated in the EPR design. The RAI responses supplementing the DC Tier 1 document must be publicly available.

Response to Question 13.06-5:

A response to this question will be provided by December 5, 2008.

Question 13.06-6:

U.S. EPR Vital Equipment List: Discuss how dependencies between trains (i.e., situations where one failure could disable multiple redundant safety system trains) have been considered in the development of vital equipment list and subsequent analysis for standard target sets for the EPR design. Examples of dependencies include:

- a. Postulated failure of HVAC in the Safeguard Building (SB) housing the operating CCWS train that may cause failure of the common header switchover, cooling to two RCP thermal barriers, and HVAC in the SB housing the other CCWS train supplying the common header (see FSAR page 19.1-37).
- b. Operations and functions of motor control centers (MCC) from a minimum of two divisions to provide a primary bleed path via either the pressurizer safety valves or the severe accident depressurization valves (see FSAR page 19.1-38).
- c. Operations and functions of MCCs from a minimum of two divisions to operate the main steam relief isolation valves (see FSAR page 19.1-39).
- d. Operations and functions of the emergency feedwater system (EFWS) pump suction tanks that are interconnected via normally open valves, so the PRA assumes that failure of a single tank results in failure of all four trains of EFWS (see FSAR page 19.1-29).

Regulatory Basis: Subpart B of 10 CFR 52, § 52.47, requires that information submitted for a design certification must include performance requirements and design information sufficiently detailed to permit the preparation of acceptance and inspection requirements by the NRC, and procurement specifications and construction and installation specifications by an applicant. Title 10 CFR 52.48 requires the applications filed will be reviewed for compliance with the standards set out in 10 CFR Part 73. Title 10 CFR 73.1 requires that a COL applicant address or a licensee provide a high assurance of protection against the DBT. The evaluation and identification of all vital equipment for the EPR design, and subsequent analysis to determine standard design target sets, is required to establish a physical protection system that would protect against the DBT.

Note: The information addressing specific details related to security features will be safeguards information (SGI) and should be marked and protected in accordance with 10 CFR 73.21. The applicant should portion mark text in the response to request for information (RAI) as appropriate to identify SGI that reveals the specific details of security features incorporated in the EPR design. The RAI responses supplementing the DC Tier 1 document must be publicly available.

Response to Question 13.06-6:

A response to this question will be provided by December 5, 2008.

Question 13.06-7:

U.S. EPR Vital Equipment List: Discuss how important operator actions identified in Chapter 19 of the FSAR for mitigating progression of accident sequences are addressed in the identification of vital equipment list. Discuss how and whether the reliability and availability of needed operator actions are addressed in the development of standard EPR target sets (e.g., protected against adversaries' attempts to prevent these actions). In addition, failure of equipment manipulated during certain operator actions may not be modeled in the PRA because of comparatively high human error probabilities. Discuss how any such equipment was considered in the development of both the vital equipment list and the development of target sets requiring physical protection.

Regulatory Basis: Same as previously stated. Also see previous note regarding protection information

Response to Question 13.06-7:

A response to this question will be provided by December 5, 2008.

Question 13.06-8:

U.S. EPR Vital Equipment List: Discuss how safety system piping (not modeled in PRA) is addressed in the identification of vital equipment for the standard EPR design. In addition, discuss how safety system components, including those associated with control systems (e.g., communications signals) relied on for operation of safety systems, are being evaluated in the identification of vital equipment, and any subsequent analysis to establish standard target sets for the EPR design.

Regulatory Basis: Same as previously stated. Also see previous note regarding protection information.

Response to Question 13.06-8:

A response to this question will be provided by December 5, 2008.

Question 13.06-9:

U.S. EPR Vital Equipment List: Revise the vital equipment list to address assumptions in NUREG-1178, "Vital Equipment/Area Guidelines Study: Vital Area Committee Report" that are not sufficient or not consistent with current guidance in the "Nuclear Power Plant Security Assessment Format and Content Guide," September 2007. Specifically, the following four of NUREG-1178 assumptions are inconsistent with the current guidance in the "Nuclear Power Plant Format and Content Guide" dated September 2007:

- One train of equipment (with the associated piping, water sources, power supplies, control, and instrumentation) that provides the capability to perform the functions (Reactivity control, decay heat removal, and process monitoring) that are necessary to achieve and maintain hot shutdown for a minimum of 8 hours from the time of reactor trip should be protected as vital. In addition, the major components of the reactor coolant makeup system and associated support equipment necessary to achieve this goal should be protected as vital.
- Only the power mode of reactor operation and hot standby (for PWRs) need be considered as long as all equipment designated as vital for power operation is maintained as vital in other modes.
- Off-site power is unavailable.
- Cable runs in trays and conduit need not be protected as vital unless cables necessary for safe shutdown capability are individually identifiable and the identification is reasonably accessible. However, cable terminals or junctions and areas such as cable spreading room, through which large numbers of cables pass, must be protected.

Regulatory Basis: Same as previously stated. The "Nuclear Power Plant Security Assessment Format and Content Guide," dated September 2007, provides detailed guidance on the security assessment process. Appendix B Sections 7.1 (Cable identification), 7.4 (Plant Modes), and 7.12 (Offsite Power), address three of the four assumptions listed above. In addition, the Section 5.1 states the expectation that the security assessment will be risk informed. As such, current risk informed guidance uses a 24 hour mission time. Also see previous note regarding protection information.

Response to Question 13.06-9:

A response to this question will be provided by December 5, 2008.

Question 13.06-10:

U.S. EPR Vital Equipment List, Section 3.2.1 and Section 3.2.2: Provide additional justification for the treatment of the pressure boundaries for these systems given that the failure of the reactor coolant pressure boundary and the secondary pressure boundary could impact the health and safety of the public. *Note that designating an area as vital and controlling access does not mean that its destruction of equipment located within the area can not occur.*

Regulatory Basis: Same as previously stated. The definition of vital equipment is contained in the “Nuclear Power Plant Security Assessment Format and Content Guide” Glossary and states that vital equipment is “Any equipment, system, device, or material, the failure, destruction, or release of which could directly or indirectly endanger the public health and safety by exposure to radiation. Equipment or systems which would be required to function to protect public health and safety following such failure, destruction, or release are also considered to be vital.” Also see previous note regarding protection information.

Response to Question 13.06-10:

A response to this question will be provided by December 5, 2008.

Question 13.06-11:

U.S. EPR Vital Equipment List, Section 3.2.1 and Section 3.2.3: Describe how this single failure criterion is used in the identification of vital equipment using an approach consistent with the Nuclear Power Plant Security Assessment Format and Content Guide Sections 7.5 and 7.15.

Regulatory Basis: Same as previously stated. Section 7.5 of the “Nuclear Power Plant Security Assessment Format and Content Guide),” dated September 2007, Section 7.5 provides guidance on the treatment of maintenance activities and Section 7.15 provides guidance on random failures. Also see previous note regarding protection of information.

Response to Question 13.06-11:

A response to this question will be provided by December 5, 2008.

Question 13.06-12:

U.S. EPR Vital Equipment List, Section 3.2.6: In reference to an interpretation of Assumption 2, provide additional justification for the apparent exclusion of protective or mitigating capabilities associated with containment isolation as vital, given the definition of vital equipment.

Regulatory Basis: Same as previously stated. The definition of vital equipment includes any equipment, system, device, or material, the failure, destruction, or release of which could directly or indirectly endanger the public health and safety by exposure to radiation (Nuclear Power Plant Security Assessment Format and Content Guide – Glossary). Also see previous note regarding protection of information.

Response to Question 13.06-12:

A response to this question will be provided by December 5, 2008.

Question 13.06-13:

U.S. EPR Vital Equipment List, Section 3.0: Provide clarification on whether vital auxiliaries such as ventilation and cooling water systems are included. Clarify the treatment of support systems and the scope of safety functions that are bases for equipment selection in Section 3.3.

Regulatory Basis: Same as previously stated. The definition of vital equipment includes any equipment, system, device, or material, the failure, destruction, or release of which could directly or indirectly endanger the public health and safety by exposure to radiation (Nuclear Power Plant Security Assessment Format and Content Guide – Glossary). Also see previous note regarding protection of information.

Response to Question 13.06-13:

A response to this question will be provided by December 5, 2008.

Question 13.06-14:

U.S. EPR Vital Equipment List, Section 3.3.1: Clarify whether the trip sensors, protective system cabinets, diverse scram systems and other related protective system equipment are included in the element of the reactivity function that has been identified as being required to shutdown the plant. In addition, clearly state for all systems discussed in Section 3.3 the vital equipment scope (e.g., pressure retaining components, water sources, valves, pumps, power supplies, and control systems).

Regulatory Basis: Same as previously stated. The definition of vital equipment includes any equipment, system, device, or material, the failure, destruction, or release of which could directly or indirectly endanger the public health and safety by exposure to radiation (Nuclear Power Plant Security Assessment Format and Content Guide – Glossary). Also see previous note regarding protection of information.

Response to Question 13.06-14:

A response to this question will be provided by December 5, 2008.

Question 13.06-15:

U.S. EPR Vital Equipment List, Section 3.3: Clarify the apparent discrepancy in the statements that in Section 3.3 the Emergency Feedwater requires two trains to support the partial cooldown function and the decay heat removal function for an initial period, and Section 3.3.2, where it states that one EFW train is sufficient.

Regulatory Basis: Same as previously stated. The definition of vital equipment includes any equipment, system, device, or material, the failure, destruction, or release of which could directly or indirectly endanger the public health and safety by exposure to radiation (Nuclear Power Plant Security Assessment Format and Content Guide – Glossary). Also see previous note regarding protection of information.

Response to Question 13.06-15:

A response to this question will be provided by December 5, 2008.

Question 13.06-16:

U.S. EPR Vital Equipment List, Section 3.3.4: Describe how the Station Blackout Event (SBO) event results in a complete **survivable** set of vital equipment, on the assumption that the reactor coolant makeup is not required to maintain the RCS inventory based on the SBO. Demonstrate that other initiating events such as main steam line breaks and loss of coolant accidents are either addressed or excluded because a design feature makes access to these systems beyond the capabilities of potential DBT adversary.

Regulatory Basis: Same as previously stated. The definition of vital equipment includes any equipment, system, device, or material, the failure, destruction, or release of which could directly or indirectly endanger the public health and safety by exposure to radiation (Nuclear Power Plant Security Assessment Format and Content Guide – Glossary). Also see previous note regarding protection of information.

Response to Question 13.06-16:

A response to this question will be provided by December 5, 2008.

Question 13.06-17:

U.S. EPR Vital Equipment List, Section 3.3.18: Clarify as to whether all equipment contained in the identified vital areas is considered to be vital equipment. Provide a complete list of vital equipment and a complete list of vital areas. Currently, the application identifies vital areas but does not identify, in all cases, the associated vital equipment and the associated safety function(s).

Regulatory Basis: Same as previously stated. The definition of a vital area is “any area which contains vital equipment (10 CFR 73.2). By identifying vital areas without identifying the associated equipment/function it becomes difficult to understand the bases for including or excluding a given area. Also see previous note regarding protection information.

Response to Question 13.06-17:

A response to this question will be provided by December 5, 2008.

Question 13.06-18:

U.S. EPR Vital Equipment List, Section 3.3.9: Clarify whether the SBO diesels are considered to be vital and should be included on the vital equipment list. If not vital equipment, the SBO diesels should be considered to be unavailable when developing the target set analysis.

Regulatory Basis: Same as previously stated. The definition of vital equipment includes any equipment, system, device, or material, the failure, destruction, or release of which could directly or indirectly endanger the public health and safety by exposure to radiation (Nuclear Power Plant Security Assessment Format and Content Guide – Glossary). Also see previous note regarding protection of information.

Response to Question 13.06-18:

A response to this question will be provided by December 5, 2008.

Question 13.06-19:

U.S. EPR Vital Equipment List, Appendix A: Provide clarification on whether vital equipment list include or does not include the EDG fuel oil tanks that enable the intended functions.

Regulatory Basis: Same as previously stated. The definition of vital equipment includes any equipment, system, device, or material, the failure, destruction, or release of which could directly or indirectly endanger the public health and safety by exposure to radiation (Nuclear Power Plant Security Assessment Format and Content Guide – Glossary). Also see previous note regarding protection of information.

Response to Question 13.06-19:

A response to this question will be provided by December 5, 2008.

Question 13.06-20:

U.S. EPR Vital Equipment List: Describe the operator assumptions used in the identification of vital equipment including any credited actions that were used to screen equipment from the vital equipment list.

Regulatory Basis: Same as previously stated. The definition of vital equipment includes any equipment, system, device, or material, the failure, destruction, or release of which could directly or indirectly endanger the public health and safety by exposure to radiation (Nuclear Power Plant Security Assessment Format and Content Guide – Glossary). Also see previous note regarding protection of information.

Response to Question 13.06-20:

A response to this question will be provided by December 5, 2008.

Question 13.06-21:

U.S. EPR Vital Equipment List: Confirm that equipment included in the significant internal events cutsets as described in the EPR FSAR Section 19 are addressed. Provide discussion of how PRA insights are addressed or used to develop and identify vital equipment.

Regulatory Basis: Same as previously stated. The “Nuclear Power Plant Security Assessment Format and Content Guide,” dated September 2007, provides detailed guidance. Appendix B Section 5.1.1 states that risk insights should be considered in the development of target sets including the key elements of the analysis: initiating event analysis, accident sequence analysis, success criteria, system analysis, human reliability analysis, internal flooding analysis and fire analysis. Also see previous note regarding protection of information.

Response to Question 13.06-21:

A response to this question will be provided by December 5, 2008.

Question 13.06-22:

U.S. EPR Vital Equipment List: Discuss how PRA flood scenarios will be or have been considered in the development of the list of vital equipment (i.e., potential flood sources, flood barriers, operator actions). Specifically, Section 19.1.5.2.1.3 of the AREVA "U.S. EPR Final Safety Analysis Report," described two internal flooding scenarios: (1) of a flood in the Reactor Building annulus that propagates to Safeguards Building (SB) 2 or 3, that does not specify the flood source but indicates the importance of the doors between the annulus and the Safeguard Buildings and the operator action to isolate the flood source; and (2) a flood in SB1 could disable the Division 1 running Component Cooling Water (CCW) train and the corresponding switchover valves, thereby disabling a switchover to the CCW standby train, where a loss of Division 1 may result in the failure of cooling to Division 2 SCWS chillers and cooling to two-out-of-four OCWS chillers.

Regulatory Basis: Same as previously stated. The "Nuclear Power Plant Security Assessment Format and Content Guide," dated September 2007, provides detailed guidance. Appendix B Section 5.1.1 states that risk insights should be considered in the development of target sets including the key elements of the analysis: initiating event analysis, accident sequence analysis, success criteria, system analysis, human reliability analysis, internal flooding analysis and fire analysis. Also see previous note regarding protection of information.

Response to Question 13.06-22:

A response to this question will be provided by December 5, 2008.

Question 13.06-23:

U.S. EPR Vital Equipment List: Clarify whether all EFWS piping is considered vital equipment. In Section 19.1.5.2.2.2 of the AREVA “U.S. EPR Final Safety Analysis Report,” states that a break in the emergency feedwater system (EFWS) could potentially affect all four divisions of the EFWS since the four EFW tanks are cross-connected and if not isolated could all drain through the same break. .

Regulatory Basis: Same as previously stated. The definition of vital equipment includes any equipment, system, device, or material, the failure, destruction, or release of which could directly or indirectly endanger the public health and safety by exposure to radiation (Nuclear Power Plant Security Assessment Format and Content Guide – Glossary). Also see previous note regarding protection of information.

Response to Question 13.06-23:

A response to this question will be provided by December 5, 2008.

Question 13.06-24:

U.S. EPR Vital Equipment List: Discuss how PRA fire scenarios have been considered in the development of the list of vital equipment (i.e., potential flood sources, flood barriers, operator actions). Specifically, Section 19.1.5.3.2.3 of the AREVA “U.S. EPR Final Safety Analysis Report,” describes significant fire sequences of the following:

- A fire in SB 1 could result in a failure of CCW Division 1 and the corresponding switchover valves, thereby disabling a switchover to the CCW standby train. The loss of Division 1 results in the failure of cooling to Division 2 SCWS chillers and cooling to two out of four OCWS chillers. Therefore, a fire in SB1 could result in a loss of two divisions. The same is true for SB4.
- A fire in the switchgear room of SB 1 or SB 4 directly results in the failure of the primary bleed function. In order to succeed, the bleed function requires either three out of three PSRVs to open, which requires the four electrical divisions, or one out of two SADVs to open, which requires Division 1 and Division 4. A fire in the switchgear room of SB4, therefore, prevents both combinations.

Regulatory Basis: Same as previously stated. The “Nuclear Power Plant Security Assessment Format and Content Guide,” dated September 2007, provides detailed guidance. Appendix B Section 5.1.1 states that risk insights should be considered in the development of target sets including the key elements of the analysis: initiating event analysis, accident sequence analysis, success criteria, system analysis, human reliability analysis, internal flooding analysis and fire analysis. Also see previous note regarding protection of information.

Response to Question 13.06-24:

A response to this question will be provided by December 5, 2008.

Question 13.06-25:

U.S. EPR Vital Equipment List: Describe in detail the process for how AREVA arrive at a final and comprehensive list of vital equipment for the standard design. Provide detailed descriptions of the process used and how it provides assurance to identify the vital equipment and improve the transparency between the sections of the vital equipment document.

The discussion of vital equipment is provided in descriptions of safety functions (Section 3.0), equipment list development assumptions (Section 3.1), plant configuration assumptions (Section 3.2), and vital equipment selection (Section 3.3), and a listing of vital equipment (Appendix A). The safety functions introduced in Section 3.0 are often not associated with the systems in Section 3.3. The Section 3.3 system discussions appear to contain the bases for inclusion or exclusion of a system or sub-system; however, definitive statements are often not provided (e.g., therefore these breakers are included on the vital equipment list). Section 3.0 states that the Vital Equipment List is contained in Appendix A. However, Section 3.3.16 contains a list of electrical buses identified as vital and that is not included in the Appendix A. Section 3.3.18 contains vital areas that are stated as including areas that “in some cases do not have specific KKS identifiers and were not included in the Appendix A table.” The discussions do not provide a description of the functions and type of equipment in these areas. As a result, the staff cannot verify that a complete and accurate list of vital equipment has been identified. The current description and discussions are less than adequate for demonstrating assurance and comprehensiveness of the process for arriving at the final list of vital equipment and demonstrate the connectivity between the various sections of the document.

Regulatory Basis: Same as previously stated. The definition of vital equipment includes any equipment, system, device, or material, the failure, destruction, or release of which could directly or indirectly endanger the public health and safety by exposure to radiation (Nuclear Power Plant Security Assessment Format and Content Guide – Glossary). Also see previous note regarding protection of information.

Response to Question 13.06-25:

A response to this question will be provided by December 5, 2008.

Question 13.06-26:

U.S. EPR Vital Equipment List: Provide plan views and side views to graphically present boundaries of vital areas that would be establish a standard for the EPR design. Where applicable, design schematics, facility layout, and equipment diagrams already provided in the various FSAR chapters should be referenced.

Regulatory Basis: Subpart B of 10 CFR 52, § 52.47, requires that information submitted for a design certification must include performance requirements and design information sufficiently detailed to permit the preparation of acceptance and inspection requirements by the NRC, and procurement specifications and construction and installation specifications by an applicant. Also see previous note regarding protection of information.

Response to Question 13.06-26:

A response to this question will be provided by December 5, 2008.

Question 13.06-27:

U.S. EPR Vital Equipment List: Describe how and whether the identified list of vital equipment will be updated to reflect changes to plant systems, configurations, and/or EPR design. Specifically, how will the vital equipment list dated September 2007 be updated to reflect subsequent information developed in topical or technical reports (ANP-010264NP, ANP10291P, GSI191, and others), updated to PRA information or insights, and reflect the updates to FSAR that could determine or affect both the identification/completeness and the locations of vital equipment?

Regulatory Basis: Subpart B of 10 CFR 52, § 52.47, requires that information submitted for a design certification must include performance requirements and design information sufficiently detailed to permit the preparation of acceptance and inspection requirements by the NRC, and procurement specifications and construction and installation specifications by an applicant. Also see previous note regarding protection of information.

Response to Question 13.06-27:

A response to this question will be provided by December 5, 2008.