ArevaEPRDCPEm Resource

From: BRYAN Martin (EXTERNAL AREVA) [Martin.Bryan.ext@areva.com]
Sent: Thursday, December 16, 2010 2:15 PM
To: Tesfaye, Getachew
Cc: DELANO Karen (AREVA); ROMINE Judy (AREVA); BENNETT Kathy (AREVA); NOXON David (AREVA); PANNELL George (AREVA); Miernicki, Michael; Ford, Tanya
Subject: Response to U.S. EPR Design Certification Application RAI No. 319, FSAR Ch 18, Supplement 5
Attachments: RAI 319 Supplement 5 Response US EPR DC.pdf

Getachew,

AREVA NP Inc. provided a technically correct and complete response 8 of the 10 questions for RAI No. 319 on October 4, 2010, along with a schedule for the remaining 2 questions. Supplement 1 response was sent on January 18, 2010 to provide a revised schedule for the remaining questions. Supplement 2 response was sent on January 29, 2010, by cover letter, to provide a response for the remaining 2 questions. Supplement 3 response was sent on April 15, 2010, by cover letter, to provide the AREVA NP U.S. EPR OER Implementation Plan. Supplement 4 response was sent on May 7, 2010, to reference the submittal of the AREVA NP Human Performance Monitoring Implementation Plan. The attached file, "RAI 319 Supplement 5 Response US EPR DC.pdf" provides a revised response to Question 18-38.

The AREVA NP U.S. EPR OER Implementation Plan supporting RAI 319, has been revised, and the plan is submitted under a separate cover letter.

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 319 Question 18-38.

The following table indicates the respective pages in the response document, "RAI 319 Supplement 5 Response US EPR DC.pdf," that contain AREVA NP's response to the subject questions.

Question #	Start Page	End Page
RAI 319 — 18-38	2	2

This concludes the formal AREVA NP response to RAI 319, and there are no questions from this RAI for which AREVA NP has not provided responses.

Sincerely,

Martin (Marty) C. Bryan
U.S. EPR Design Certification Licensing Manager
AREVA NP Inc.
Tel: (434) 832-3016
702 561-3528 cell
Martin.Bryan.ext@areva.com

From: BRYAN Martin (EXT)
Sent: Friday, May 07, 2010 11:10 AM
To: 'Tesfaye, Getachew'
Cc: DELANO Karen V (AREVA NP INC); BENNETT Kathy A (OFR) (AREVA NP INC); ROMINE Judy (AREVA NP INC); PANNELL George L (AREVA NP INC)
Subject: Response to U.S. EPR Design Certification Application RAI No. 319, FSAR Ch 18, Supplement 4

Getachew,

RAI 319 was submitted December 17, 2010, a date of May 7, 2010 was provided for submittal of the "U.S. EPR Human Performance Monitoring Implementation Plan ". The date for submittal of this plan was associated with RAI 319, Question 18-44.

The commitment for submittal of the "U.S. EPR Human Performance Monitoring Implementation Plan" was fulfilled by the submittal of RAI 328 Supplement 5, April 23, 2010.

Therefore, this submittal confirms completion of the commitment made in RAI 319 by virtue of the RAI 328 Supplement 5 submittal of the "U.S. EPR Human Performance Monitoring Implementation Plan."

Martin (Marty) C. Bryan
U.S. EPR Design Certification Licensing Manager
AREVA NP Inc.
Tel: (434) 832-3016
702 561-3528 cell
Martin.Bryan.ext@areva.com

From: BRYAN Martin (EXT)
Sent: Friday, April 16, 2010 11:30 AM
To: 'Tesfaye, Getachew'
Cc: DELANO Karen V (AREVA NP INC); ROMINE Judy (AREVA NP INC); BENNETT Kathy A (OFR) (AREVA NP INC); PANNELL George L (AREVA NP INC)
Subject: PROPRIETARY Response to U.S. EPR Design Certification Application RAI No. 319, FSAR Ch 18, Supplement 3

Getachew,

Attached are AREVA NP's letter (NRC 10:035), affidavit, PROPRIETARY and Non-Proprietary versions of "U.S. EPR OER Implementation Plan 118-9023868-003."

Sincerely,

Martin (Marty) C. Bryan
Licensing Advisory Engineer
AREVA NP Inc.
Tel: (434) 832-3016
Martin.Bryan.ext@areva.com

From: BRYAN Martin (EXT)
Sent: Friday, April 16, 2010 11:20 AM
To: 'Tesfaye, Getachew'
Cc: DELANO Karen V (AREVA NP INC); ROMINE Judy (AREVA NP INC); BENNETT Kathy A (OFR) (AREVA NP INC); PANNELL George L (AREVA NP INC)
Subject: Response to U.S. EPR Design Certification Application RAI No. 319, FSAR Ch 18, Supplement 3

Getachew,

AREVA NP Inc. (AREVA NP) responded to RAI 319, Question 18-38 on December 17, 2009 and provided a schedule of April 16, 2010 for the submittal of "U.S. EPR OER Implementation Plan 118-9023868-003."

The proprietary and non-proprietary versions of " U.S. EPR OER Implementation Plan 118-9023868-003" are submitted via AREVA NP Inc. letter, " Submittal of U.S. EPR OER Implementation Plan 118-9023868-003," NRC 10:035, dated April 15, 2010. An affidavit to support withholding of information from public disclosure, per 10CFR2.390(b), is provided as an enclosure to that letter.

Sincerely,

Martin (Marty) C. Bryan
Licensing Advisory Engineer
AREVA NP Inc.
Tel: (434) 832-3016
Martin.Bryan.ext@areva.com

From: DUNCAN Leslie E (AREVA NP INC)
Sent: Friday, January 29, 2010 5:17 PM
To: 'Tesfaye, Getachew'
Cc: BENNETT Kathy A (OFR) (AREVA NP INC); DELANO Karen V (AREVA NP INC); PANNELL George L (AREVA NP INC)
Subject: Response to U.S. EPR Design Certification Application RAI No. 319, FSAR Ch 18, Supplement 2

Getachew,

The proprietary and non-proprietary versions of the response to RAI No. 319, Supplement 2 are submitted via AREVA NP Inc. letter, "Response to U.S. EPR Design Certification Application RAI No. 319, Supplement 2," NRC 10:005, dated January 29, 2010. The enclosure to that letter provides technically correct and complete responses to the two remaining questions of RAI No. 319. An affidavit to support withholding of information from public disclosure, per 10CFR2.390(b), is provided as an enclosure to that letter.

The following table indicates the respective page(s) in the response document that contain AREVA NP's response to the subject questions.

Question #	Start Page	End Page
RAI 319 – 18-37	2	2
RAI 319 – 18-46	3	3

This concludes the formal AREVA NP response to RAI 319, and there are no questions from this RAI for which AREVA NP has not provided responses.

Sincerely,

Les Duncan
Licensing Engineer
AREVA NP Inc.
An AREVA and Siemens Company
Tel: (434) 832-2849
Leslie.Duncan@areva.com

From: DUNCAN Leslie E (AREVA NP INC)
Sent: Monday, January 18, 2010 6:01 PM
To: 'Tesfaye, Getachew'
Cc: BENNETT Kathy A (OFR) (AREVA NP INC); DELANO Karen V (AREVA NP INC)
Subject: Response to U.S. EPR Design Certification Application RAI No. 319, FSAR Ch 18, Supplement 1

Getachew,

AREVA NP is unable to provide a response to RAI 319, Supplement 1 (Question 18-37) at this time because of the processing time needed to create proprietary and non-proprietary versions of the associated internal AREVA documents provided as part of the response. The schedule for a technically correct and complete response to Question 18-37 has been revised to January 29, 2010. The schedule for a technically correct and complete response Question 18-46 remains unchanged. The revised schedule is provided below:

Question #	Response Date
RAI 319 — 18-37	January 29, 2010
RAI 319 — 18-46	January 29, 2010

Sincerely,
Les Duncan
Licensing Engineer
AREVA NP Inc.
An AREVA and Siemens Company
Tel: (434) 832-2849
Leslie.Duncan@areva.com

From: WELLS Russell D (AREVA NP INC)
Sent: Thursday, December 17, 2009 6:21 PM
To: 'Getachew Tesfaye'
Cc: Pederson Ronda M (AREVA NP INC); BENNETT Kathy A (OFR) (AREVA NP INC); DELANO Karen V (AREVA NP INC)
Subject: Response to U.S. EPR Design Certification Application RAI No. 319, FSAR Ch 18

Getachew,

Attached please find AREVA NP Inc.'s response to the subject request for additional information (RAI). The attached file, "RAI 319 Response US EPR DC.pdf" provides technically correct and complete responses to 8 of the 10 questions.

The following table indicates the respective pages in the response document, "RAI 319 Response US EPR DC.pdf" that contain AREVA NP's responses to the subject questions

Question #	Start Page	End Page
RAI 319 — 18-37	2	2
RAI 319 — 18-38	3	4
RAI 319 — 18-39	5	5
RAI 319 — 18-40	6	8
RAI 319 — 18-41	9	9
RAI 319 — 18-42	10	14
RAI 319 — 18-43	15	15
RAI 319 — 18-44	16	16
RAI 319 — 18-45	17	17
RAI 319 — 18-46	18	18

A complete answer is not provided for the 2 questions. The schedule for technically correct and complete responses to these questions is provided below.

Question #	Response Date

RAI 319 — 18-37	January 18, 2010
RAI 319 — 18-46	January 29, 2010

Sincerely,

(Russ Wells on behalf of)

Ronda Pederson
ronda.pederson@areva.com
Licensing Manager, U.S. EPR Design Certification
New Plants Deployment
AREVA NP, Inc.
An AREVA and Siemens company
3315 Old Forest Road
Lynchburg, VA 24506-0935
Phone: 434-832-3694
Cell: 434-841-8788

From: Tesfaye, Getachew [mailto:Getachew.Tesfaye@nrc.gov]
Sent: Tuesday, November 17, 2009 3:58 PM
To: ZZ-DL-A-USEPR-DL
Cc: Keefe, Molly; Marble, Julie; Bongarra, James; Pieringer, Paul; Junge, Michael; Steckel, James; Colaccino, Joseph; ArevaEPRDCPEm Resource
Subject: U.S. EPR Design Certification Application RAI No. 319 (3842), FSARCh. 18

Attached please find the subject requests for additional information (RAI). A draft of the RAI was provided to you on October 22, 2009, and discussed with your staff on November 17, 2009. Draft RAI Question 18-40 was modified as a result of that discussion. The schedule we have established for review of your application assumes technically correct and complete responses within 30 days of receipt of RAIs. For any RAIs that cannot be answered within 30 days, 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.

Thanks,
Getachew Tesfaye
Sr. Project Manager
NRO/DNRL/NARP
(301) 415-3361

Hearing Identifier: AREVA_EPR_DC_RAIs
Email Number: 2368

Mail Envelope Properties (BC417D9255991046A37DD56CF597DB71086ED1B8)

Subject: Response to U.S. EPR Design Certification Application RAI No. 319, FSAR Ch 18, Supplement 5
Sent Date: 12/16/2010 2:14:49 PM
Received Date: 12/16/2010 2:15:14 PM
From: BRYAN Martin (EXTERNAL AREVA)

Created By: Martin.Bryan.ext@areva.com

Recipients:
"DELANO Karen (AREVA)" <Karen.Delano@areva.com>
Tracking Status: None
"ROMINE Judy (AREVA)" <Judy.Romine@areva.com>
Tracking Status: None
"BENNETT Kathy (AREVA)" <Kathy.Bennett@areva.com>
Tracking Status: None
"NOXON David (AREVA)" <David.Noxon@areva.com>
Tracking Status: None
"PANNELL George (AREVA)" <George.Pannell@areva.com>
Tracking Status: None
"Miernicki, Michael" <Michael.Miernicki@nrc.gov>
Tracking Status: None
"Ford, Tanya" <Tanya.Ford@nrc.gov>
Tracking Status: None
"Tesfaye, Getachew" <Getachew.Tesfaye@nrc.gov>
Tracking Status: None

Post Office: AUSLYNCMX02.adom.ad.corp

Files	**Size**	**Date & Time**
MESSAGE	10354	12/16/2010 2:15:14 PM
RAI 319 Supplement 5 Response US EPR DC.pdf	50514	

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

Response to

Request for Additional Information No. 319 (3858), Revision 0, Supplement 5

11/17/2009

U. S. EPR Standard Design Certification
AREVA NP Inc.
Docket No. 52-020
SRP Section: 18 - Human Factors Engineering
Application Section: 11, Verification and Validation

QUESTIONS for Operating Licensing and Human Performance Branch
(AP1000/EPR Projects) (COLP)

Question 18-38:

Section 3.4 of NUREG-0711 Criterion 1 states:

The review should include information pertaining to the human factors issues related to the predecessor plant(s) or highly similar plants and plant systems.

Section 3.2.1 of the U.S. EPR Operating Experience Review (OER) implementation plan states that the U.S. EPR is an evolutionary PWR design based on years of operation and design experiences from the precursor plants. The applicant has identified this operational and design information as being based on the European N4 and Konovi plants which are based upon Westinghouse PWRs currently operating in the U.S. The U.S. EPR OER is based upon operating experience from highly similar plants and systems. Therefore, the applicant lists the following as applicable data sources: (1) N4 and Konovi; (2) highly similar PWR plants; (3) BWR plants using similar systems; and (4) plants' corrective action programs (CAPs) and modernization programs related to the human factors engineering issues/challenges with other similar systems.

Define and provide examples for the following terms: "predecessor," "highly similar," and "precursor" as it relates to Criterion 1 of NUREG-0711.

Response to Question 18-38:

The following two definitions are provided in the U.S. EPR Inheritance Plan for Human Factors Engineering Analysis.

1. A precursor plant is defined as the kind of large, four-loop nuclear plant from which the U.S. EPR design evolved, such as the French N4 plants and the German Konvoi plants.
2. A predecessor plant is defined as an EPR plant (e.g., Olkiluoto 3 and Flamanville 3) whose conceptual design was complete prior to the beginning of the U.S. EPR design and is considered a source of inheritance.

Precursor plants are used on an entire plant level for operating experience (OE), while other plants are used based on the similarity of specific systems. The bullet in Section 3.2.1 of the U.S. EPR Operating Experience Review (OER) Implementation Plan reading "Highly similar PWR plants" will be changed to read "Highly similar PWR plant systems." The term "highly similar" includes systems that contain the same general components and configurations that fulfill the same functions.

The heading for Section 3.2.1 will be changed to read "Precursor / Related Plants and Systems."

The AREVA NP U.S. EPR OER Implementation Plan has been revised and the proprietary plan is submitted under a separate cover letter. Additional clarifying changes are made to U.S. EPR FSAR Tier 2, Section 18.2 to reflect the revised implementation plan.

FSAR Impact:

U.S. EPR FSAR Tier 2, Section 18.2 will be revised as described in the response and indicated on the enclosed markup.

U.S. EPR Final Safety Analysis Report Markups

RAI 319 Q 18-38

18.2 Operating Experience Review

Operating experience review (OER) associated with HFE identifies HSI design issues that affect safety. The OER identifies past performance information for ~~predecessor designs (i.e.,~~ earlier designs ~~on which the new design is based)~~. The issues and lessons learned from operating experience provide a basis for improving the plant design at the beginning of, and during the design process.

18.2.1 Objectives and Scope

RAI 319 Q 18-38

The OER identifies problems and issues with the HSI. Evaluation and control of the HSI design is promoted when the problems are resolved; operator errors are also reduced. The OER output demonstrates that HFE-related problems and issues in previous designs that are similar to the current design have been identified and analyzed. In this way, negative features associated with ~~predecessor~~those designs are avoided in the current design while retaining the positive features. The OER addresses the ~~predecessor~~similar systems of which the design is based, selected technological approaches (e.g., if touch-screen interfaces are planned, associated HFE issues are reviewed), and HFE issues (e.g., generic safety issues defined by the NRC) of the plant.

18.2.2 Methodology

Section 3.0 of Reference 1 describes the process for evaluating operating, design, and construction experience. The OER implementation plan (Reference 1) provides further details, including:

RAI 319 Q 18-38

- Sources and means of collecting data.
- Review area focus:
  - ~~Predecessor / r~~Related plants and systems.
  - Recognized industry HFE issues.
  - Related HFE technology.
  - Issues identified by plant personnel (including interview topics, questions, and results).
  - Risk-important human actions.
- Information screening.
- OE Analysis.
- Tracking and maintaining appropriate information.
- Incorporation or utilization of issues by the appropriate design organization.

The multi-disciplinary composition, qualifications and experience level of the HFE and Control Room Design Team provides reasonable assurance that operating experience and the results of research relevant to safety are identified, reviewed and analyzed and that the lessons learned are incorporated into the HSI design.

18.2.3 Evaluation of Results

After an OER issue has been entered into the appropriate tracking database, it is evaluated by a cognizant human factors engineer for applicability. The evaluation includes determining if any lessons learned from the issue have already been incorporated into the design.

Upon completion of the evaluation, the human factors engineer updates the tracking database with appropriate information. Each issue that results in a design change will follow the design change process described in Section 4.5.1 of the Human Factors Engineering Program Management Plan (Reference 2). When the issue has been incorporated into the design, it is closed out in the tracking database. The resolution will remain available for engineers to view.

OER results are a summary of the data captured and analyzed in the tracking database and the source materials that were evaluated using the methodology described in the implementation plan. The results summary also includes information on how selected issues were captured, maintained, evaluated, and incorporated in the final design.

18.2.4 References

1. U.S. EPR Human Factors Operating Experience Review Implementation Plan, AREVA NP Inc., ~~2009~~2010. RAI 319 Q 18-38
2. U.S. EPR HFE Program Management Plan, AREVA NP Inc., ~~2009~~2010. RAI 319 Q 18-38

Next File