

Callaway2COLPEm Resource

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Sent: Tuesday, June 09, 2009 8:42 AM
To: Olson, Bruce; Arora, Surinder; Colaccino, Joseph; Miernicki, Michael; Bobnar, William B; Bond, Scott M; Cryderman, Pat M; Doug Hibbard; Gallagher, Susan L; Heflin, Adam C; Herrmann, Timothy E; Huhmann, Bruce E; John.Tynan@constellation.com; Johnson, Paula A; Koleber, Melvin; Lamb, Ronald T; Lunn, Adam M; melissa.dubinsky@rizzoassoc.com; Meyer, Stephen J; Passwater, Al; Raybuck, Joe H; Rice, Rick L; Rocky Sgarro; Shafer, David E; Slaten, Neal; valerie.north@rizzoassoc.com; Waller, David R; rick.williamson@areva.com; Wink, Roger C; Wrobel, George; Jim Freels; Robert Poche; Steve Strout; Thomas Demitrack; Wayne Massie
Cc: Klang, Susan L
Subject: ALNRC Letters 000028, 00033, 00027, 00034, 00035, 000021
Attachments: ALNRC 00035.pdf; ALNRC00021.pdf; ALNRC00027.pdf; ALNRC00028.pdf; ALNRC 00033.pdf; ALNRC 00034.pdf

Please find attached letters:

- ALNRC 000021 "AmerenUE Callaway Plant Unit 2 (NRC Docket No. 52-037) Response to RAI No. 15 (eRAI 2599), Revision 0, SRP Section
14.02, Initial Plant Test Program-Design Certification and New License Applicants"
- ALNRC 00035 "AmerenUE, Callaway Plant Unit 2 (NRC Docket No. 52-037) Response to RAI No. 10 (eRAI 2602), Revision 0, SRP Section
17.04 –Reliability Assurance Program (RAP)"
- ALNRC 00034 "AmerenUE, Callaway Plant Unit 2 (NRC Docket No. 52-037) Response to RAI No. 8 (eRAI 2478), Revision 0, SRP Section
03.06.03 – Leak-Before-Break Evaluation Procedures"
- ALNRC 00027 "AmerenUE, Callaway Plant Unit 2 (NRC Docket No. 52-037) Response to RAI No. 13 (eRAI 2497), Revision 0, SRP Section
08.01-Electrical Power"
- ALNRC 00033 "AmerenUE, Callaway Plant Unit 2 (NRC Docket No. 52-037) Response to RAI No. 17 (eRAI 2683), Revision 0, SRP Section
5.3.3 – Reactor Vessel Integrity"
- ALNRC 000028 "AmerenUE, Callaway Plant Unit 2 (NRC Docket No. 52-037) Response to RAI No. 12 (eRAI 2447), Revision 0, SRP Section
03.11 – Environmental Qualification of Mechanical and Electrical Equipment"

Shaunti Wilson
AmerenUE-Callaway
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Mail Envelope Properties (AA67F2919E402D4588BCE6A93AF4E46504255DE6)

Subject: ALNRC Letters 000028, 00033, 00027, 00034, 00035, 000021
Sent Date: 6/9/2009 8:41:49 AM
Received Date: 6/9/2009 8:42:20 AM
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MESSAGE	2264	6/9/2009 8:42:20 AM
ALNRC 00035.pdf	72404	
ALNRC00021.pdf	133917	
ALNRC00027.pdf	316070	
ALNRC00028.pdf	393621	
ALNRC 00033.pdf	298135	
ALNRC 00034.pdf	206011	

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June 8, 2009

10 CFR 52.75

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ALNRC 00035



Subject: AmerenUE, Callaway Plant Unit 2 (NRC Docket No. 52-037)
Response to RAI No. 10 (eRAI No. 2602), Revision 0, SRP Section
17.04 - Reliability Assurance Program (RAP)

Reference: 1.) Surinder Arora (NRC) to David E. Shafer (AmerenUE), "Final
RAI No. 10 (eRAI 2602) – Public" email dated May 12, 2009
2.) UN#09-266, UniStar Nuclear Energy, NRC Docket No. 52-016
Submittal of Response to Request for Additional Information for
the Calvert Cliffs Nuclear Power Plant, Unit 3 RAI No. 61,
Reliability Assurance Program (RAP), dated May 29, 2009.

The purpose of this letter is to provide a schedule for completing the response to the Request for Additional Information (RAI) identified in the NRC e-mail correspondence to AmerenUE, dated May 12, 2009 (Reference 1). This RAI addresses SRP Section: 17.04 - Reliability Assurance Program (RAP), as discussed in Section 17.4 of the Final Safety Analysis Report (FSAR), as submitted in Part 2 of the Callaway Plant Unit 2 Combined License Application (COLA). Calvert Cliffs Nuclear Power Plant Unit 3, which is the Reference COLA for the U.S. EPR Design Center, received a similar RAI for which the response has not been fully developed (Reference 2).

AmerenUE requires additional time to receive vendor input, ensure consistency with the final RCOLA RAI response, then finalize the AmerenUE response to this RAI. A response to the questions contained in this RAI will be provided to the NRC by August 15, 2009.

There are no regulatory commitments or proprietary information identified in this letter.

ALNRC 00035
June 8, 2009
Page 2 of 3

If there are any questions regarding this transmittal, please contact me at (573) 676-8241, Scott Bond at (573) 676-8519, or Dave Shafer at (573) 676-4722.

Executed on June 8, 2009


Scott M. Bond
Manager, Nuclear Generation
Development

ALNRC 00035

June 8, 2009

Page 3 of 3

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June 8, 2009

10 CFR 52.75

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ALNRC 000021



Subject: AmerenUE, Callaway Plant Unit 2 (NRC Docket No. 52-037)
Response to RAI No. 15 (eRAI 2599), Revision 0, SRP Section
14.02, Initial Plant Test Program – Design Certification and New
License Applicants.

Reference: Surinder Arora (NRC) to David E. Shafer (AmerenUE), “Final RAI
No. 15 (eRAI 2599) - Public”, email dated May 12, 2009

The purpose of this letter is to respond to the Request for Additional Information (RAI) identified in the NRC e-mail correspondence to AmerenUE, dated May 12, 2009, (Reference). This RAI addresses the Initial Plant Test Program as discussed in Section 14.2 of the Final Safety Analysis Report (FSAR), as submitted in Part 2 of the Callaway Plant Unit 2 Combined License Application (COLA).

Enclosure 1 provides our response to RAI No. 15 (eRAI 2599), Revision 0.

This response does not include any new regulatory commitments or contain proprietary information.

COLA impacts associated with the response to this RAI are noted in Enclosure 2.

If there are any questions regarding this transmittal, please contact me at (573) 676-8519, SBond2@ameren.com or Dave Shafer at (573) 676-4722, DShafer@ameren.com.

ALNRC 000021

June 8, 2009

Page 2

I declare under penalty of perjury that the foregoing is true and correct.

Executed on June 8, 2009

Handwritten signature of Scott M. Bond in cursive script.

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Enclosure:

1. Response, RAI No. 15 (eRAI 2599), Revision 0
2. Proposed COLA Changes Associated with the Response to RAI No. 15 (eRAI 2599)

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ALNRC 000021
Enclosure 1

Enclosure 1

Response to RAI No. 15 (eRAI 2599), Revision 0

Question 14.02-1

FSAR Section 14.2.14.1, Essential Service Water Emergency Make-up System (ESWEMS), COL Applicant Site-Specific Tests:

This section identifies test methods under the initial testing program to demonstrate adequate operation of the ESWEMS. The test method verifies that each ESWEMS division can be operated from the ESWEMS Pumphouse. Clarify why the test to demonstrate remote control from the main control room or remote shutdown panel is not included.

Response:

FSAR Section 14.2.14.1 lacked the clarity necessary to ensure that the operation of each ESWEMS division would be verified from the main control room and the remote shutdown panel. The text of FSAR Section 14.2.14.1 will be revised as shown in Enclosure 2, Proposed COLA Changes Associated with the Response to RAI No. 15 (eRAI 2599).

COLA Impact

The Callaway Plant Unit 2 FSAR Section 14.2.14.1 will be revised as shown in Enclosure 2 during the next formal revision of the Callaway Plant Unit 2 COLA.

The U.S. EPR FSAR includes the following COL Item in Section 14.2.12.21.6:

A COL applicant that references the U.S. EPR design certification will provide site-specific information for the cooling tower.

These COL Items are addressed in Section 14.2.14.

14.2.13 REFERENCES

No departures or supplements.

14.2.14 COL APPLICANT SITE-SPECIFIC TESTS

This section is added to provide a location for COL applicants to list site-specific startup tests.

14.2.14.1 {Essential Service Water Emergency Makeup System (ESWEMS)}

1. OBJECTIVES

- a. To demonstrate the ability of the ESWEMS to supply makeup water as designed.
- b. To establish baseline performance data for future equipment surveillance and ISI.

2. PREREQUISITES

- a. Construction activities on the ESWEMS, including the ESWEMS pond, Pumphouse and test bypass line, have been completed and the system is functional.
- b. ESWEMS instrumentation is functional and has been calibrated.
- c. Support systems required for operation of the ESWEMS are complete and functional.
- d. Test instrumentation available and calibrated.

3. TEST METHOD

- a. ~~Verify that each ESWEMS division can be operated from the ESWEMS Pumphouse.~~
Verify that each ESWEMS division can be operated from the main control room and the remote shutdown panel.
- b. Verify safety-related motor operated valves respond as designed to input signals.
- c. Verify valve position indication.
- d. Verify each ESWEMS pump discharge strainer operates as designed.
- e. Verify alarms, interlocks, display instrumentation, and status lights function as designed.
- f. Verify head versus flow characteristics for each ESWEMS pump.
- g. Verify valve performance data, where required.

4. DATA REQUIRED

LBDCR09-0175

June 8, 2009

10 CFR 52.75

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ALNRC 00027

Subject: AmerenUE, Callaway Plant Unit 2 (NRC Docket No. 52-037)
Response to RAI No. 13 (eRAI 2497), Revision 0, SRP
Section 08.01 – Electric Power

Reference: Surinder Arora (NRC) to David E. Shafer (AmerenUE), “Final RAI
No. 13 (eRAI 2497) - Public” email dated May 12, 2009.

The purpose of this letter is to respond to the Request for Additional Information (RAI) identified in the NRC e-mail correspondence to AmerenUE, dated May 12, 2009 (Reference). This RAI is associated with the Electric Power System as discussed in Section 8.1 of the Final Safety Analysis Report (FSAR), as submitted in Part 2 of the Callaway Plant Unit 2 Combined License Application (COLA).

Enclosure 1 provides our response to RAI No. 13 (eRAI 2497), Revision 0.

This response does not include any new regulatory commitments or contain proprietary information.

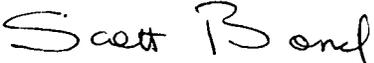
COLA impacts associated with the response to this RAI are noted in Enclosure 2.

If there are any questions regarding this transmittal, please contact me at (573) 676-8519, SBond2@ameren.com or Dave Shafer at (573) 676-4722, DShafer@ameren.com.

ALNRC 00027
June 8, 2009
Page 2

I declare under penalty of perjury that the foregoing is true and correct.

Executed on June 8, 2009

Handwritten signature of Scott M. Bond in black ink.

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Enclosure:

1. Response to RAI No. 13 (eRAI 2497), Revision 0
2. Proposed COLA Changes Associated with the Response to RAI No. 13 (eRAI 2497)

ALNRC 00027
June 8, 2009
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ALNRC 00027
Enclosure 1

Enclosure 1

Response to RAI No. 13 (eRAI 2497), Revision 0

Question 08.01-1

Callaway FSAR Sections 8.1.4.4 and 8.2.1.1 describe agreements and protocols that are in place between Callaway Unit 2 and the transmission system operator (TSO) to provide safe and reliable operation of the transmission system and equipment at Callaway Unit 2. However, a description of the communication procedures between the TSO and Callaway Unit 2, and the associated training and testing of operators and maintenance personnel as requested in GL 2006-02 questions 1(b), 1(c) and 1(d) are not provided in the COL application. Please provide the requested information and include it in a future revision of the FSAR.

Response

A description of the communications agreements and protocols in place between Callaway Plant Unit 2 and the transmission systems operator (TSO), and the Callaway Plant Unit 2 procedures and training will be added to FSAR Section 8.2.1.1 as shown in Enclosure 2, Proposed COLA Changes Associated with the Response to RAI No. 13 (eRAI 2683).

COLA Impact

COLA Part 2 FSAR, Section 8.2.1.1 will be revised as shown in Enclosure 2 during the next formal revision of the Callaway Plant Unit 2 COLA.

ALNRC 00027
Enclosure 2

Enclosure 2

**Proposed COLA Changes Associated with the Response to RAI No. 13 (eRAI
2497)**

This arrangement provides two physically-separated offsite power sources to Callaway Plant comprised of five 345 kV circuits. The CAL-BLAN circuits and the CAL-LSCR circuit form one preferred offsite power source for the Callaway Plant, with the MTGY-CAL circuits forming the second. The nearest point between these two sources is where the Loose Creek and Montgomery lines attach to their respective switchyard termination structures. The distance between the centerline of these lines at this point is approximately 1550 ft (472 m). An overview of these transmission lines is provided in Figure 8.1-1.

The Callaway Plant Unit 2 switchyard is connected to the Callaway Plant Unit 1 switchyard by two 345 kV, 1800 MVA circuits routed on common steel towers. These circuits are approximately 1 mi (1.6 km) in length and are contained entirely on AmerenUE property.

Two physically independent circuits that minimize the likelihood of their simultaneous failure under operational and environmental conditions and postulated events are provided to Callaway Plant Unit 2 by the switchyard connecting circuits and the MTGY-CAL circuits. The nearest distance between a switchyard connecting circuit and a MTGY-CAL line is the point where they attach to the switchyard termination structures. The distance between the centerline of these lines at this point is approximately 250 ft (76 m).

Design details of the seven 345 kV circuits described above are given in the Table 8.2-1. Figure 8.2-1 depicts the 345 kV transmission line configurations.}

The U.S. EPR FSAR includes the following COL Item in Section 8.2.1.1:

A COL applicant that references the U.S. EPR design certification will provide site-specific information regarding the communication agreements and protocols between the station and the transmission system operator, independent system operator, or reliability coordinator and authority. Additionally, the applicant will provide a description of the analysis tool used by the transmission operator to determine, in real time, the impact that the loss or unavailability of various transmission system elements will have on the condition of the transmission system to provide post-trip voltages at the switchyard. The information provided will be consistent with information requested in NRC generic letter 2006-02.

This COL Item is addressed as follows:

{The Callaway site lies within the service territory of AmerenUE. Midwest Independent System Operator (MISO) is the Transmission Provider and Reliability Coordinator for the region containing AmerenUE’s service territory, and is responsible for the regional reliability coordination as defined in the NERC (North American Electric Reliability Corporation) and Regional Standards and applicable MISO Operating Manuals. AmerenUE operates its transmission facilities as a balancing authority under the direction and control of MISO.

LBDCR 09-0182

Formal agreements are established between AmerenUE, MISO and Callaway Plant to provide reliable operation of the transmission system connected to Callaway Plant. These agreements establish requirements for transmission system parameters, operation, and analysis, as well as establishing protocols for communications between these entities.

As a part of these agreements AmerenUE-Ameren Transmission Operations and MISO perform both seasonal (winter and summer) and real time grid analyses. The frequency and type of studies to be performed, as well as the required transmission system operation criteria are outlined in the agreements and are in accordance with Federal Energy Regulatory Commission (FERC) reliability standards, MISO and AmerenUE standards, regional practices and the Callaway Plant Transmission Owner Agreement.

LBDCR 09-0182

The reliability of the AmerenUE system is continuously (real time) analyzed by both AmerenUE Ameren Transmission Operations and MISO. AmerenUE Ameren Transmission Operations uses power system analysis programs along with a state estimator to evaluate the strength of the transmission system and identify contingencies which could pose a threat to the system. This allows operators to react to strengthen the transmission system where needed. Operational planning studies are also performed using Power System State Estimation (PSSE) program, an offline power flow study tool. PSSE is used for analysis of near term operating conditions under varying load, generation, and transmission topology patterns.

The agreements between AmerenUE, MISO and Callaway Plant also establish protocols for communications so that Callaway Plant remains cognizant of grid vulnerabilities to make informed decisions regarding reliability and operability of the offsite power supply. Callaway Plant reviews the transmission system parameters and informs AmerenUE Ameren Transmission Operations prior to initiating any plant activities that may affect grid reliability. In addition, plant operators inform AmerenUE Ameren Transmission Operations of changes in generation ramp rates and notify them of any developing problems that may impact generation. AmerenUE Ameren Transmission Operations then conveys any pertinent information to MISO.

Initial planning of the addition of a large generating unit such as Callaway Plant Unit 2 requires completion of the MISO Large Generator Interconnection Procedure (Large Generator Interconnect Agreement MISO). Studies performed as part of this procedure evaluate the transmission system to MISO and AmerenUE standards. The study identifies any transmission system modifications required to accommodate the additional generating unit (combined turbine-generator-exciter) and the main step-up transformers including modifications to substations and switchyards.}

The agreement between MISO, AmerenUE, and the Callaway Plant establishes the basis for procedures that support the reliability and safety of the Callaway Plant. In conjunction with, and as referred to in, that document, is a generic protocol document, "Midwest ISO Real-Time Operations-Communication and Mitigation Protocols for Nuclear Plant/Electric System Interfaces," RTO-OP-03, which is used to guide or govern communication between Midwest ISO, Ameren Transmission Operations, and Callaway Plant.

For Callaway Plant and per the agreement/protocol described above, Ameren Transmission Operations and/or MISO are required to notify the Callaway Plant whenever an impaired or potentially degraded grid condition is recognized by Ameren Transmission Operations and/or MISO. Specific examples of conditions identified in the agreement include the following:

1. MISO will monitor the appropriate system conditions and notify Callaway Plant via Ameren Transmission Operations when operating conditions are outside of established limits, defined as the Category 8 Alarm, as well as when they are restored to within acceptable criteria.
2. Ameren Transmission Operations will immediately notify Callaway Plant of an actual violation to the operating criteria affecting Callaway Plant.
3. MISO or Ameren Transmission Operations will immediately notify Callaway Plant upon verification that study results indicate a post-contingent violation of operating criteria not mitigated within 15 minutes.

Callaway Plant notifies Ameren Transmission Operations (who in turn notifies MISO as necessary) for the following conditions and/or activities:

LBDCR 09-0182

LBDCR 09-0182

1. Changes to switchyard voltage, switchyard breaker alignment, or main generator VAR loading. Notification of such changes is performed in accordance with applicable Callaway Plant procedures which govern switchyard maintenance, power reduction in support of maintenance, or isolation of devices for maintenance.
2. Changes in Callaway Plant post-trip offsite power loading. Notification of such changes is performed in accordance with certain Operations Alarm Response Procedures.
3. Changes in status of Callaway Plant offsite power voltage regulating devices (such as Load Tap Changers in manual mode versus automatic mode). Operating procedures governing the manipulation of these devices require communication with the Ameren Transmission Operations several days before any planned manual operation.

LBD CR 09-0182

Operators will receive classroom and simulator training on recognition of grid conditions, selecting the appropriate procedure for response, and procedure usage as part of the standard operator training program. Knowledge gained in this training will be tested by written quizzes and evaluated simulator scenarios.

8.2.1.2 Station Switchyard

The U.S. EPR FSAR includes the following COL Item in Section 8.2.1.2:

A COL applicant that references the U.S. EPR design certification will provide site-specific information for the switchyard layout design.

This COL Item is addressed as follows:

{The 345 kV air insulated switchyard for Callaway Plant Unit 2 has been designed and is sized and configured along with the existing Callaway Plant Unit 1 switchyard to accommodate the output of both Callaway Units 1 and 2. The location of this switchyard is on the Callaway site approximately 350 ft (107 m) southwest of Callaway Plant Unit 2 and 700 ft (213 m) to the northwest of the existing Callaway Plant Unit 1 345 kV switchyard. The two 345 kV switchyards are interconnected by overhead lines and transmit electrical power output from Callaway Plant to the AmerenUE transmission system. The Callaway Plant Unit 2 switchyard layout and location are shown on Figure 8.2-1.

A schematic of the Callaway Plant Unit 2 switchyard layout design, which incorporates a breaker and a half scheme, is presented in Figure 8.2-2. Circuit breakers are rated in accordance with IEEE Standard C37.06 (IEEE, 2000). Circuit breakers are equipped with dual trip coils. The 345 kV circuit breakers in the switchyard are rated according to the following criteria.

- ◆ Circuit breaker continuous current ratings are chosen such that no single contingency in the switchyard (e.g., a breaker being out for maintenance) will result in a load exceeding 100% of the nameplate continuous current rating of the breaker.
- ◆ Interrupting duties are specified such that no fault occurring on the system while operating in steady-state conditions will exceed the breaker's nameplate interrupting capability.
- ◆ Short Time ratings are specified such that no fault occurring on the system while operating in steady-state conditions will exceed the switch's nameplate short time rating.

June 8, 2009

10 CFR 52.75

U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
11555 Rockville Pike
Rockville, MD. 20852

ALNRC 000028



Subject: AmerenUE, Callaway Plant Unit 2 (NRC Docket No. 52-037)
Response to RAI No. 12 (eRAI 2447), Revision 0, SRP Section 03.11
- Environmental Qualification of Mechanical and Electrical
Equipment

Reference:

- 1) Surinder Arora (NRC) to David E. Shafer (AmerenUE), "Final RAI No. 12 (eRAI 2447) - Public" email dated May 12, 2009
- 2) UN#09-176, UniStar Nuclear Energy, NRC Docket No. 52-016; Response to Request for Additional Information for the Calvert Cliffs Nuclear Power Plant, Unit 3, RAI No. 80, Environmental Qualification of Mechanical and Electrical Equipment.

The purpose of this letter is to respond to the Request for Additional Information (RAI) identified in the NRC e-mail correspondence to AmerenUE, dated May 12, 2009 (Reference 1). This RAI addresses the Environmental Qualification of Mechanical and Electrical Equipment as discussed in Section 3.11 of the Final Safety Analysis Report (FSAR), as submitted in Part 2 of the Callaway Plant Unit 2 Combined License Application (COLA).

Enclosure 1 provides our response to RAI No. 12 (eRAI 2447), Revision 0. It is noted that Question 03.11-1 of this RAI was also addressed to Calvert Cliffs Nuclear Power Plant Unit 3 which is the Reference COLA for the U.S. EPR Design Center. Unistar Nuclear Energy provided a response to this RAI question for Calvert Cliffs Nuclear Power Plant 3 in Reference 2.

This response does not include any new regulatory commitments or contain proprietary information.

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June 8, 2009

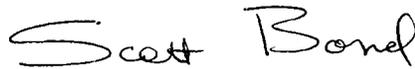
Page 2

COLA impacts associated with the response to this RAI are noted in Enclosure 2 for Question 03.11-1 and Enclosure 3 for Question 03.11-2.

If there are any questions regarding this transmittal, please contact me at (573) 676-8519, SBond2@ameren.com or Dave Shafer at (573) 676-4722, DShafer@ameren.com.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on June 8, 2009

A handwritten signature in black ink that reads "Scott Bond". The signature is written in a cursive style with a large, looped "S" and "B".

Scott M. Bond
Manager,
Nuclear Generation Development

SMB/AML/slk

Enclosure:

1. Response to RAI No. 12 (eRAI 2447), Revision 0
2. Proposed COLA Changes Associated with the Response to Question 03.11-1 RAI No. 12 (eRAI 2447)
3. Proposed COLA Changes Associated with the Response to Question 03.11-2 RAI No. 12 (eRAI 2447)

cc:

Mr. Elmo E. Collins, Jr. Regional Administrator U.S. Nuclear Regulatory Commission Region IV 612 E. Lamar Blvd., Suite 400 Arlington, TX 76011-4125	Senior Resident Inspector Callaway Resident Office U.S. Nuclear Regulatory Commission 8201 NRC Road Steedman, MO 65077
Bruce Olson, P.E. Environmental Project Manager U.S. EPR Projects Branch Division of New Reactor Licensing Office of New Reactors Bruce.Olson@nrc.gov	Surinder Arora, P.E. Project Manager U.S. EPR Projects Branch Division of New Reactor Licensing Office of New Reactors Surinder.Arora@nrc.gov
Joseph Colaccino, Chief U.S. EPR Projects Branch Division of New Reactor Licensing Office of New Reactors Joseph.Colaccino@nrc.gov	Michael Miernicki Senior Project Manager U.S. EPR Projects Branch Division of New Reactor Licensing Office of New Reactors Michael.Miernicki@nrc.gov
Project Team/Others Distribution List	RACC Members Distribution List

File code: A160.5761

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Enclosure 1
Page 1 of 3

Enclosure 1

Response to RAI No. 12 (eRAI 2447), Revision 0

Question 03.11-1

Section 3.11 of FSAR Rev.2:

10 CFR 50.49(j) states that "A record of the qualification...must be maintained in an auditable form ..." Please describe how the records will be maintained in an auditable form so that the documents are readily accessible for audit. Make appropriate changes to the FSAR regarding record retention under 10 CFR 50.49(j).

Response:

This question was previously addressed to Calvert Cliffs Nuclear Power plant Unit 3 which is the Reference COLA for the U.S. EPR Design Center. Unistar Nuclear Energy provided a response to this RAI question for Calvert Cliffs Nuclear Power Plant 3 in Reference 2. AmerenUE endorses the response provided by Calvert Cliffs Nuclear Power Plant Unit 3 in RAI No. 80 Question 03.11-3.

COLA Impact

COLA Part 2 FSAR, Section 3.11 and COLA Part 10 ITAAC will be revised as shown in Enclosure 2 during the next formal revision of the Callaway Plant Unit 2 COLA.

Question 03.11-2

FSAR Table 3.11-1, page 3-210 states: "Verify the Tag Numbers of the ESWEMS Pumphouse Class 1E 6.9 kV-480 V transformers and ESWEMS Class 1E Motor Control Centers." These are inconsistent with the Tag No.s for the same equipment shown in Figure 8.3-1, "EPSS Single Line Diagram." Please reconcile the inconsistency and amend your FSAR accordingly.

Response:

The tag numbers for the ESWEMS Pumphouse Class 1E equipment given in FSAR Table 3.11-1 are correct. The tag numbers given for the same equipment shown in Figures 8.3-1 through 8.3-3 "Emergency Power Supply System Single Line Drawing" and Tables 8.3-1 through 8.3-2 are incorrect and will be revised to reflect the numbers provided in Table 3.11-1 as shown in Enclosure 3, Proposed COLA Changes Associated with the Response to Question 03.11-2.

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Enclosure 1
Page 3 of 3

COLA Impact

FSAR Figures 8.3-1, through 8.3-3 and Tables 8.3-1 through 8.3-2 will be revised to reflect correct tag numbers for the ESWEMS Pumphouse Class 1E electrical equipment as shown in Enclosure 3 during the next formal revision of the Callaway Plant Unit 2 COLA.

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Enclosure 2

Enclosure 2

Proposed COLA Changes Associated with the Response to Question 03.11-1
RAI No. 12 (eRAI 2447)

3.11 ENVIRONMENTAL QUALIFICATION OF MECHANICAL AND ELECTRICAL EQUIPMENT

This section of the U.S. EPR FSAR is incorporated by reference with the supplements as described in the following sections.

The U.S. EPR FSAR includes the following COL Holder Item in Section 3.11:

A COL applicant that references the U.S EPR design certification will maintain the equipment qualification test results and qualification status file during the equipment selection, procurement phase and throughout the installed life in the plant.

This COL Holder Item is addressed as follows:

{AmerenUE} shall develop and maintain 1) a list of electrical equipment meeting the criteria of 10 CFR 50.49 and 2) a record of qualification for each applicable electrical equipment type. The record shall contain the necessary environmental qualification information to meet the requirements of 10 CFR 50.49. This information will be stored and retained in accordance with the Quality Assurance Program Description or QAPD. This information will remain current and in an auditable form that meets requirements of 10 CFR 50.49(j) and the QAPD. shall maintain the equipment qualification test results and qualification status file during the equipment selection, procurement phase and throughout the installed life in the plant.

3.11.1 EQUIPMENT IDENTIFICATION AND ENVIRONMENTAL CONDITIONS

No departures or supplements.

3.11.1.1 Equipment Identification

No departures or supplements.

3.11.1.1.1 Nuclear Island

No departures or supplements.

3.11.1.1.2 Balance of Plant (BOP) and Turbine Island (TI)

No departures or supplements.

3.11.1.1.3 Equipment Review and Screening

The U.S. EPR FSAR includes the following COL Item in Section 3.11.1.1.3:

A COL applicant that references the U. S. EPR design certification will identify additional site-specific components that need to be added to the environmental qualification list in Table 3.11-1.

This COL Item is addressed as follows:

Table 3.11-1 provides the list of additional site-specific components to add to the equipment list in U.S. EPR FSAR Table 3.11-1. **{It includes the safety-related and augmented quality items of the site-specific portion of the Essential Service Water Emergency Makeup System (ESWEMS) and Fire Protection System.}** The cable types listed are typical of those which are anticipated to be utilized throughout the plant in safety-related applications, including those which are site-specific. However, the function and location related columns in the attached table entries are for site-specific applications only. The environmental qualification parameters shown in the attached table are based on the criteria described in U.S. EPR FSAR Section 3.11.

LBDCR 09-0117
LBDCR 09-0115

FSAR: Chapter 3.0

COL Items 3.9-9 and 3.9-10 in Section 3.9.1.2

{AmerenUE} shall perform the required pipe stress and support analysis and shall utilize a piping analysis program based on the computer codes described in U.S. EPR FSAR Section 3.9.1 and U.S. EPR FSAR Appendix 3C.

COL Item 3.9-12 in Section 3.9.6.4

{AmerenUE} shall provide a table identifying the safety-related systems and components that use snubbers in their support systems, including the number of snubbers, type (hydraulic or mechanical), applicable standard, and function (shock, vibration, or dual-purpose snubber). For snubbers identified as either a dual-purpose or vibration arrester type, {AmerenUE} shall denote whether the snubber or component was evaluated for fatigue strength. Per ASME Section III, Subsection NF, the fatigue evaluation shall not be required for shock snubbers. This information shall be provided prior to installation of any of the snubbers.

COL Item 3.10-1 in Section 3.10.2

{AmerenUE} shall not use experience data to establish equipment qualification.

COL Item 3.10-2 in Section 3.10.4

{AmerenUE} shall create and maintain the Seismic Qualification Data Package (SQDP) file. This activity shall be initiated during the equipment selection and procurement phase. The SQDP file shall be maintained for the life of the plant.

COL Item 3.11-1 in Section 3.11

{AmerenUE} shall develop and maintain 1) a list of electrical equipment meeting the criteria of 10 CFR 50.49 and 2) a record of qualification for each applicable electrical equipment type. The record shall contain the necessary environmental qualification information to meet the requirements of 10 CFR 50.49. This information will be stored and retained in accordance with the Quality Assurance Program Description or QAPD. This information will remain current and in an auditable form that meets requirements of 10 CFR 50.49(j) and the QAPD. ~~shall maintain the equipment qualification test results and qualification status file during the equipment selection, procurement phase and throughout the installed life in the plant.~~

COL Item 3.11-3 in Section 3.11.3

{AmerenUE} shall develop and submit the equipment qualification testing program, including milestones and completion dates, prior to installation of the applicable equipment.

COL Item 3.12-1 in Section 3.12.4.2

{AmerenUE} shall perform a review of the impact of contributing mass of supports on the piping analysis following the final support design to confirm that the mass of the support is no more than ten percent of the mass of the adjacent pipe span.

COL Item 3.12-2 in Section 3.12.4.3

{AmerenUE} shall use piping analysis programs listed in Section 5.1 of the referenced topical report (ANP-10264(NP)).

COL Item 3.13-1 in Section 3.13-2

{AmerenUE} shall submit the inservice inspection plan for ASME Class 1, Class 2, and Class 3 threaded fasteners to the NRC prior to performing the first inspection.

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Enclosure 3

Enclosure 3

Proposed COLA Changes Associated with the Response to Question 03.11-2
RAI No. 12 (eRAI 2447)

Table 8.3-1—(Onsite AC Power System Component Data Nominal Values)

Component	Nominal Ratings
EPSS Distribution Transformers	Dry Type
21BMT05, 31BMT05, 32BMT05 22BMT05	60 Hz, three phase, air cooled
23BMT05, 33BMT05, 34BMT05 24BMT05	6.9 kV to 480 V
	500 kVA

FSAR: Chapter 8.0

Table 8.3-2—{EPSS Switchgear, Load Center, and Motor Control Center Numbering and Nominal Voltage}

Nominal Voltage Level	Division	Switchgear / Load Center / Motor Control Center
480 V MCC	1	21 31BNG01 ⁽¹⁾
480 V MCC	2	22 32BNG01 ⁽¹⁾
480 V MCC	3	23 33BNG01 ⁽¹⁾
480 V MCC	4	24 34BNG01 ⁽¹⁾

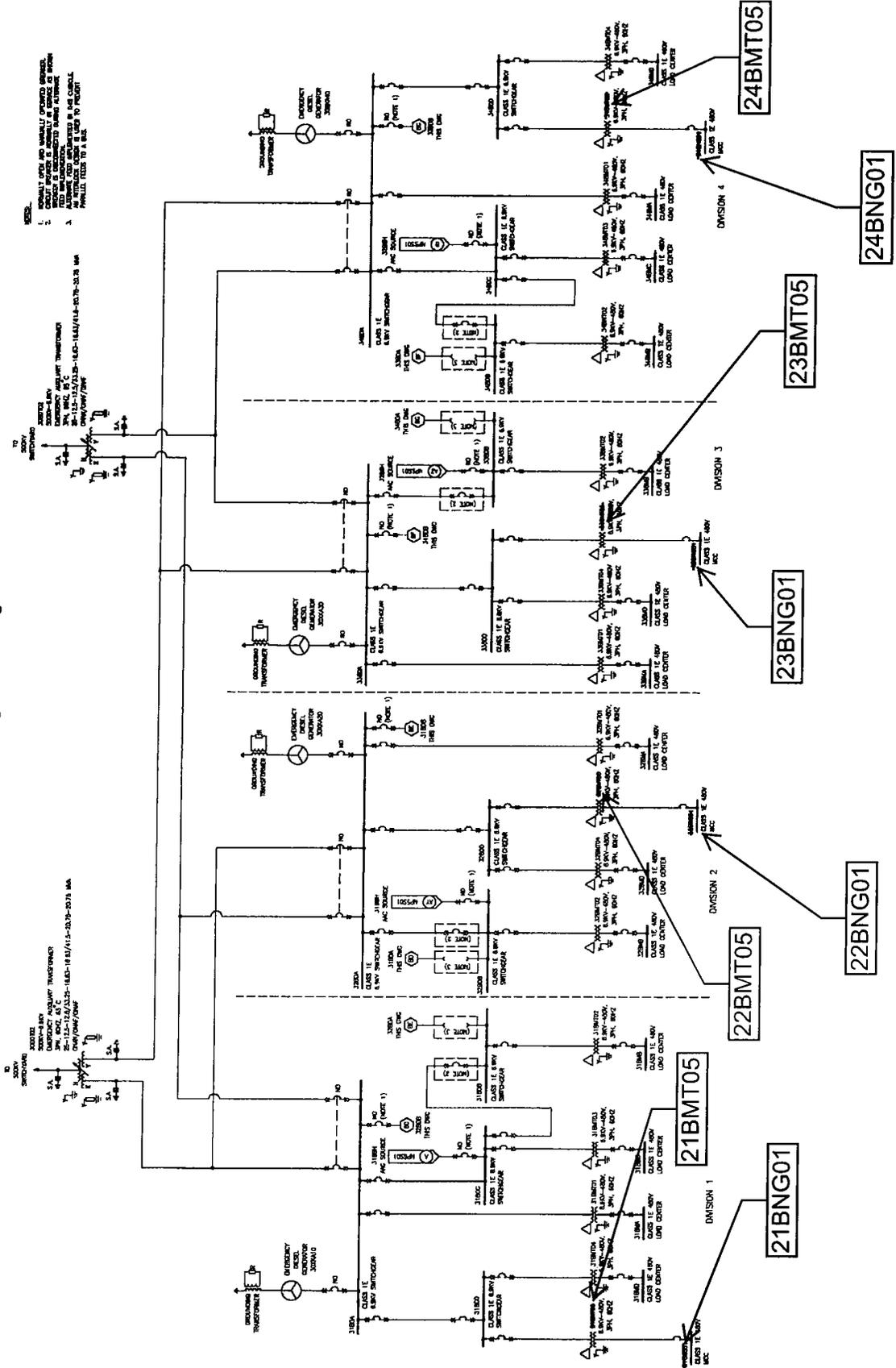
Note

⁽¹⁾ Equipment located in the respective division in the ESWEMS Electrical Building.

FSAR: Chapter 8.0

Figure 8.3-1—[Emergency Power Supply System Single Line Drawing - Sheet 1 of 3]

Supplemental EPSS Single Line Drawing



June 8, 2009

10 CFR 52.75

U.S. Nuclear Regulatory Commission
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Rockville, MD. 20852

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Subject: AmerenUE, Callaway Plant Unit 2 (NRC Docket No. 52-037)
Response to RAI No. 17 (eRAI 2683), Revision 0, SRP Section 5.3.3-
Reactor Vessel Integrity

Reference:

- 1) Surinder Arora (NRC) to David E. Shafer (AmerenUE), "Final RAI No. 17 (eRAI 2683) - Public" email dated May 21, 2009
- 2) UN#09-156, UniStar Nuclear Energy, NRC Docket No. 52-016, Response to Request for Additional Information for the Calvert Cliffs Nuclear Power Plant, Unit 3, RAI No. 77, Reactor Vessel Integrity, dated March 27, 2009.

The purpose of this letter is to respond to the Request for Additional Information (RAI) identified in the NRC e-mail correspondence to AmerenUE, dated May 21, 2009 (Reference 1). This RAI addresses the Reactor Vessel Integrity as discussed in Section 5.3.3 of the Final Safety Analysis Report (FSAR), as submitted in Part 2 of the Callaway Plant Unit 2 Combined License Application (COLA).

The same RAI question was addressed to Calvert Cliffs Nuclear Power Plant Unit 3 which is the Reference COLA for the U.S. EPR Design Center. UniStar Nuclear Energy provided a response to this RAI question for Calvert Cliffs Nuclear Power Plant Unit 3 in Reference 2.

Callaway Plant Unit 2 accepts and endorses the same response provided in Reference 2 for Callaway Plant Unit 2. Enclosure 1 provides the proposed Callaway Plant Unit 2 COLA markups associated with the response to this RAI question. The Callaway Plant Unit 2 FSAR and COLA Part 10: Inspections, Tests, Analyses, and Acceptance Criteria (ITAAC) and ITAAC Closure will be revised in a future COLA

ALNRC 00033

June 8, 2009

Page 2

revision to formally incorporate the proposed changes identified in this RAI response.

This response does not include any proprietary information or new regulatory commitments.

If there are any questions regarding this transmittal, please contact me at (573) 676-8519, SBond2@ameren.com or Dave Shafer at (573) 676-4722, DShafer@ameren.com.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on June 8, 2009

A handwritten signature in black ink that reads "Scott Bond". The signature is written in a cursive style with a large initial "S" and "B".

Scott M. Bond
Manager, Nuclear Generation
Development

SMB/AML/slk

Enclosure:

1. Callaway Plant Unit 2 FSAR and ITAAC Changes in Response to RAI No. 17 (eRAI 2683)

ALNRC 00033

June 8, 2009

Page 3

cc:

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Bruce Olson, P.E. Environmental Project Manager U.S. EPR Projects Branch Division of New Reactor Licensing Office of New Reactors Bruce.Olson@nrc.gov	Surinder Arora, P.E. Project Manager U.S. EPR Projects Branch Division of New Reactor Licensing Office of New Reactors Surinder.Arora@nrc.gov
Joseph Colaccino, Chief U.S. EPR Projects Branch Division of New Reactor Licensing Office of New Reactors Joseph.Colaccino@nrc.gov	Michael Miernicki Senior Project Manager U.S. EPR Projects Branch Division of New Reactor Licensing Office of New Reactors Michael.Miernicki@nrc.gov
Project Team/Others Distribution List	RACC Members Distribution List

File code: A160.5761

ALNRC 00033
Enclosure 1

Enclosure 1

**Callaway Plant Unit 2 FSAR and ITAAC Changes in Response to RAI No.
17 (eRAI 2683)**

Table 1.1-1—{Acronyms Used in this Document}
(Page 9 of 12)

PMWP	Probable Maximum Winter Precipitation
PP	Pocket Penetrometer
PPA	Power Purchase Agreement
PPE	Plant Parameter Envelope
PPM	Parts per Million
PPRP	Power Plant Research Program
PPT	Part per Thousand
PRA	Probabilistic Risk Assessment
PRB	Powder River Basin
PSAR	Preliminary Safety Analysis Report
PSC	Public Service Commission
PSD	Prevention of Significant Deterioration
PSHA	Probabilistic Seismic Hazard Analysis
PSP	Physical Security Plan
PSS	Palustrine Scrub Shrub Wetlands
PSSE	Power System State Estimation
PST	Pre-Service Testing
PSWS	Potable and Sanitary Water System
PTC	Production Tax Credit
PTLR	Pressure and Temperature Limits Report
PTS	Pressurized Thermal Shock
PUB	Palustrine Unconsolidated Bottom
PV	Photovoltaic
PVC	Polyvinyl Chloride
PWR	Pressurized Water Reactor
PWSD	Public Water Supply District
QAPD	Quality Assurance Program Description
QC	Quality Control
QSL	Qualified Suppliers List
R	Radiation Exposure
RAP	Reliability Assurance Program
RAW	Risk Achievement Worth
RB	Reactor Building
RC	Release Consequence or Resonant Column
RCA	Radiologically Controlled Area
RCRA	Resource Conservation and Recovery Act
RCS	Reactor Coolant System
RCTS	Resonant Column Torsional Shear
RCx	Retro-Commissioning
RD	Rupture Disk Valve
REA	Rod Ejection Accident
REMP	Radiological Environmental Monitoring Program
RERP	Radiological Emergency Response Plan
RETS	Radiological Effluent Technical Specifications
RF	Reelfoot Fault
RFC	Requests for Clarification
RG	Regulatory Guide
RIMS	Regional Input-Output Modeling System
RLE	Review Level Earthquake
RMS	Records Management System

LBD CR 09-0111

A COL applicant that references the U.S. EPR design certification will identify the implementation milestones for the material surveillance program.

This COL Item is addressed as follows:

The implementation milestones for the Reactor Vessel material surveillance program are provided in Table 13.4-1.

5.3.1.7 Reactor Vessel Fasteners

No departures or supplements.

5.3.2 PRESSURE-TEMPERATURE LIMITS, PRESSURIZED THERMAL SHOCK, AND CHARPY UPPER-SHELF ENERGY DATA AND ANALYSES

No departures or supplements.

5.3.2.1 Pressure-Temperature Limit Curves

The U.S. EPR FSAR includes the following COL Holder Item in Section 5.3.2.1:

A COL applicant that references the U.S. EPR design certification will provide a plant-specific pressure and temperature limits report (PTLR), consistent with an approved methodology.

This COL Holder Item is addressed as follows:

A plant-specific PTLR will be provided in accordance with {Callaway Plant Unit 2} Technical Specification 5.6.4, "Reactor Coolant System (RCS) PRESSURE AND TEMPERATURE LIMITS REPORT (PTLR)," and will be based on the methodology provided in ANP-10283P (AREVA, 2007).

5.3.2.2 Operating Procedures

No departures or supplements.

5.3.2.3 Pressurized Thermal Shock

No departures or supplements.

5.3.2.4 Upper-Shelf Energy

No departures or supplements.

5.3.3 REACTOR VESSEL INTEGRITY

~~No departures or supplements.~~ The information in this subsection is incorporated by reference with no departures and the following supplement:

The plant-specific pressurized thermal shock (PTS) evaluation will be submitted to the NRC within one year of acceptance of the reactor vessel by the licensee.

5.3.4 REFERENCES

{AREVA, 2007. Reactor Coolant System (RCS) Pressure and Temperature Limits Report (PTLR), ANP-10283P, AREVA NP, 2007.}

LBDCR-09-0117

LBDCR-09-0111

- d. indicate the corrective action taken to preclude repetition of the event and to prevent similar occurrences involving similar site preparation and preliminary construction activities, and
- e. indicate the agencies notified and their preliminary responses.

For events reportable under this subsection that also require reports to other Federal, State or local agencies, the licensee shall report in accordance with those reporting requirements in lieu of the requirements of this subsection. The licensee shall provide the NRC with a copy of such report at the same time it submits it to the other agency.

10. PLANT SPECIFIC TECHNICAL SPECIFICATIONS

The Generic Technical Specifications provided Limiting Trip Setpoints that cannot be determined until after the COL is issued.

PROPOSED LICENSE CONDITION:

TS 3.3.1 {Callaway Plant Unit 2} shall submit a license amendment following completion of a plant-specific setpoint study following selection of the plant-specific instrumentation. This amendment shall update Table 3.3.1-2 and the associated Bases to provide plant-specific setpoint information.

11. REACTOR VESSEL INTEGRITY

COL application FSAR Section 5.3.3 requires submittal of the plant-specific pressurized thermal shock (PTS) evaluation to the NRC within one year of acceptance of the reactor vessel by the licensee.

PROPOSED LICENSE CONDITION:

The plant - specific PTS evaluation will be submitted to the NRC within one year of acceptance of the reactor vessel by the licensee.

LBCR 09-0111

Greg Gibson
Vice President, Regulatory Affairs

250 West Pratt Street, Suite 2000
Baltimore, Maryland 21201



10 CFR 50.4
10 CFR 52.79

March 27, 2009

UN#09-156

A handwritten signature in black ink, appearing to be "Greg Gibson".

ATTN: Document Control Desk
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Subject: UniStar Nuclear Energy, NRC Docket No. 52-016
Response to Request for Additional Information for the
Calvert Cliffs Nuclear Power Plant, Unit 3,
RAI No. 77, Reactor Vessel Integrity

References: 1) John Rycyna (NRC) to Robert Poche (UniStar), "RAI No 77 CIB1 1541.doc (PUBLIC)," email dated March 12, 2009

The purpose of this letter is to respond to the request for additional information (RAI) identified in the NRC e-mail correspondence to UniStar Nuclear, dated March 12, 2009 (Reference 1). This RAI addresses Reactor Vessel Integrity, as discussed in Section 5.3.3 of the Final Safety Analysis Report (FSAR), as submitted in Part 2 of the Calvert Cliffs Nuclear Power Plant (CCNPP) Unit 3 Combined License Application (COLA), Revision 4.

The enclosure provides our response to RAI No 77, Question 05.03.03-1, which includes revised COLA content. A Licensing Basis Document Change Request has been initiated to incorporate this change in a future revision of the COLA. Our response to Question 05.03.03-1 adds a new COL Item to FSAR Section 5.3.3; otherwise, there are no new regulatory commitments.

If there are any questions regarding this transmittal, please contact me at (410) 470-4205, or Mr. Michael J. Yox at (410) 495-2436.

UN#09-156
March 27, 2009
Page 2

I declare under penalty of perjury that the foregoing is true and correct.

Executed on March 27, 2009



Greg Gibson

Enclosure: Response to NRC Request for Additional Information, RAI No. 77, Reactor Vessel Integrity, Calvert Cliffs Nuclear Power Plant Unit 3

cc: John Rycyna, NRC Project Manager, U.S. EPR COL Application
Getachew Tesfaye, NRC Project Manager, U.S. EPR DC Application (w/o enclosure)
Thomas Fredrichs, NRC Environmental Project Manager, U.S. EPR COL Application
Loren Plisco, Deputy Regional Administrator, NRC Region II (w/o enclosure)
Silas Kennedy, U.S. NRC Resident Inspector, CCNPP, Units 1 and 2
U.S. NRC Region I Office

Enclosure

**Response to NRC Request for Additional Information,
RAI No. 77, Reactor Vessel Integrity,
Calvert Cliffs Nuclear Power Plant Unit 3**

RAI No. 77

Question 05.03.03-1

The as-procured reactor vessel material properties will be available to the COL holder after the acceptance of the reactor vessel. In order to provide sufficient time for NRC review of the RTPTS evaluation using the as-procured reactor vessel material properties, the staff requests that a more specific and timely milestone for submitting the PTS evaluation to the NRC be established. Therefore, the staff requests that a license condition be added in Section 5.3.3 to state that within a reasonable period of time following acceptance of the reactor vessel (e.g., 1 year after the acceptance of the reactor vessel), the COL holder shall submit to the NRC staff its plant-specific PTS evaluation.

Response

The CCNPP Unit 3 COLA will be updated to include a license condition requiring submittal of the plant-specific Pressurized Thermal Shock (PTS) evaluation to NRC staff within one year of acceptance of the reactor vessel by the licensee.

COLA Impact

COLA Part 2 (FSAR) Section 5.3.3 will be revised to include the following supplement:

5.3.3 REACTOR VESSEL INTEGRITY

~~No departures or supplements.~~ The information in this subsection is incorporated by reference with no departures and the following supplement:

The plant-specific pressurized thermal shock (PTS) evaluation will be submitted to the NRC within one year of acceptance of the reactor vessel by the licensee.

COLA Part 10 (ITAAC) will add the following item to the end of Appendix A (Proposed Combined License Conditions):

11. REACTOR VESSEL INTEGRITY

COL application FSAR Section 5.3.3 requires submittal of the plant-specific pressurized thermal shock (PTS) evaluation to the NRC within one year of acceptance of the reactor vessel by the licensee.

PROPOSED LICENSE CONDITION

The plant - specific PTS evaluation will be submitted to the NRC within one year of acceptance of the reactor vessel by the licensee.

June 8, 2009

10 CFR 52.75

U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
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Rockville, MD 20852



ALNRC 00034

Subject: AmerenUE, Callaway Plant Unit 2 (NRC Docket No. 52-037)
Response to RAI No. 8 (eRAI 2478), Revision 0, SRP Section:
03.06.03 - Leak-Before-Break Evaluation Procedures

Reference:

- 1) Surinder Arora (NRC) to David E. Shafer (AmerenUE), "Final RAI No. 8 (eRAI 2478) - Public" email dated May 12, 2009

The purpose of this letter is to respond to the Request for Additional Information (RAI) identified in the NRC e-mail correspondence to AmerenUE, dated May 12, 2009 (Reference 1). This RAI is associated with the Leak-Before-Break Evaluation discussion provided in Final Safety Analysis Report (FSAR) Section 3.6.3 of the Callaway Plant Unit 2 Combined License Application (COLA).

Enclosure 1 provides our response to RAI No. 8 (eRAI 2478), Revision 0.

This response does not include any new regulatory commitments or contain proprietary information.

If there are any questions regarding this transmittal, please contact me at (573) 676-8519, SBond2@ameren.com or Dave Shafer at (573) 676-4722, DShafer@ameren.com.

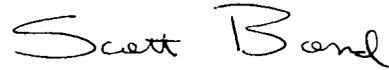
ALNRC 00034

June 8, 2009

Page 2

I declare under penalty of perjury that the foregoing is true and correct.

Executed on June 8, 2009

A handwritten signature in black ink that reads "Scott Bond". The signature is written in a cursive style with a large, prominent "S" and "B".

Scott M. Bond
Manager, Nuclear Generation
Development

SMB/RCW/slk

Enclosure: Response to RAI No. 8 (eRAI 2478), Revision 0

cc:

Mr. Elmo E. Collins, Jr. Regional Administrator U.S. Nuclear Regulatory Commission Region IV 612 E. Lamar Blvd., Suite 400 Arlington, TX 76011-4125	Senior Resident Inspector Callaway Resident Office U.S. Nuclear Regulatory Commission 8201 NRC Road Steedman, MO 65077
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Joseph Colaccino, Chief U.S. EPR Projects Branch Division of New Reactor Licensing Office of New Reactors Joseph.Colaccino@nrc.gov	Michael Miernicki Senior Project Manager U.S. EPR Projects Branch Division of New Reactor Licensing Office of New Reactors Michael.Miernicki@nrc.gov
Project Team/Others Distribution List	RACC Members Distribution List

File code: A160.5761

ALNRC 00034
Enclosure 1

Enclosure 1

Response to RAI No. 8 (eRAI 2478), Revision 0

Response to RAI No. 8 (eRAI 2478) – Public, Revision 0

Question 03.06.03-1

Chapter 3.6.3 of the applicant's FSAR states that "{Ameren UE} shall confirm that the design Leak-Before-Break (LBB) analysis remains bounding for each piping system." Please provide as-designed LBB analyses for each LBB piping system prior to COL issuance or provide justification for concluding that the as-designed LBB analyses remain bounding for each piping system.

Response:

In accordance with the COL applicant item action from FSAR Chapter 3.6.3, AmerenUE confirms that the design Leak-Before-Break analysis remains bounding for each piping system. The justification for reaching the conclusion that the as-designed LBB analysis remains bounding for each piping system is given below and is based on analysis performed by AREVA for AmerenUE.

The Callaway Plant Unit 2 site-specific application of LBB to the main coolant loop, surge line and main steam line is evaluated by comparing the loads resulting from the Callaway Plant Unit 2 site-specific Ground Motion Response Spectra/Foundation Input Response Spectra (GMRS/FIRS) and site-specific soil profiles combined with normal operating loads with the U.S. EPR LBB allowable range of loadings.

The main coolant loop loads are compared at the Reactor Pressure Vessel (RPV) inlet nozzle, RPV outlet nozzle, steam generator inlet nozzle, steam generator outlet nozzle, reactor coolant pump outlet nozzle, reactor coolant pump inlet nozzle, hot leg piping, cold leg piping, and crossover leg piping. The most highly loaded locations are the RPV outlet nozzle region and steam generator inlet nozzle region. The Callaway Plant Unit 2 site-specific main coolant loop loads are confirmed to lie within the U.S. EPR design certification allowable load limit LBB curves.

The main steam line loads are compared at the steam generator outlet nozzle and main steam line piping. The most highly loaded location is in the main steam line piping. The Callaway Plant Unit 2 site-specific main steam line loads are confirmed to lie within the U.S. EPR design certification allowable load limit LBB curves.

The surge line loads are compared at the pressurizer nozzle, hot leg nozzle, and surge line piping. The pressurizer nozzle, hot leg nozzle, and certain sections of the surge line piping are the most highly loaded locations in the surge line. The Callaway Plant

Unit 2 site specific surge line loads are confirmed to lie within the U.S. EPR design certification allowable load limit LBB curves.

The Callaway Plant Unit 2 site-specific application of LBB to the main coolant loop, surge line, and main steam line is confirmed because the site-specific main coolant loop, surge line, and main steam line loads are confirmed to lie within the U.S. EPR design certification allowable load limit LBB curves.

COLA Impact

The Callaway Plant Unit 2 COLA does not require revision as a result of the response to this RAI question.

Question 03.06.03-2

The EPR LBB generic design has had difficulty meeting the staff's safety factor of 2 on dynamic loadings and AREVA was proposing to use a safety factor of 1.7. In recent developments for the EPR generic design to envelope all current sites' seismic loadings, AREVA is proposing to revise its generic seismic design response spectra. This could cause an increase in seismic loadings, thereby impacting the LBB design and possibly causing a further decrease in the LBB dynamic loading safety factor.

Please provide an analysis or evaluation that demonstrates that the main steam piping inside containment meets the safety factor of 2 using site specific seismic response spectra.

Response:

The evaluation discussed in the above response to question 03.06.03-1 describes why Callaway Plant Unit 2 site-specific main steam line loads associated with the main steam line piping inside containment lie within the U.S. EPR design certification allowable load limit LBB curves. Based on the conclusion that the Callaway Plant Unit 2 loads lie within the U.S. EPR design certification allowable loads, Callaway Plant Unit 2 site specific application of LBB to the main steam line piping inside containment is confirmed.

The Callaway Plant Unit 2 site-specific analysis is discussed in Callaway Plant Unit 2 FSAR Section 2.5.2.6.6 to demonstrate that the main steam piping inside containment meets the criteria and safety factor for LBB as described in the U.S. EPR DCD. AREVA has also verified that a minimum safety factor of 2.0 is met by

the Callaway Plant Unit 2 site specific analysis for the main steam line piping inside containment.

The RAI question also acknowledges plans within the U.S. EPR design center to update the generic seismic design response spectra such that the current U.S. EPR COL applicants will be bounded within the U.S. EPR DCD seismic analysis.

On 6/2/09, during a meeting of the U.S. EPR Design Centered Working Group (DCWG), AREVA updated the NRC Staff on the DCWG plans to bound the current U.S. EPR COL Applicant GMRS within the U.S. EPR design certification. The schedule for completing this analysis and providing an update to the U.S. EPR FSAR is targeted for October, 2009.

At this meeting, AmerenUE committed to describe to the Staff by June 30, 2009, which Callaway Plant Unit 2 FSAR sections would be impacted by this proposed change to the U.S. EPR FSAR. Providing this information will clarify which Callaway Plant Unit 2 FSAR sections will be affected by the change. AmerenUE also committed to provide supplemental information for the Callaway SCOLA soon after the AREVA update targeted for October, 2009.

COLA Impact

The Callaway Plant Unit 2 COLA does not require revision as a result of the response to this RAI question. It is noted that the Callaway Plant Unit 2 FSAR will be revised after the Callaway Plant Unit 2 ground motion response spectra is bounded by the updated U.S. EPR design certification.