

June 11, 2012

Mr. Adam C. Heflin  
Senior Vice President and Chief  
Nuclear Officer  
Union Electric Company  
P.O. Box 620  
Fulton, MO 65251

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION FOR THE REVIEW OF THE  
CALLAWAY PLANT, UNIT 1 LICENSE RENEWAL APPLICATION (TAC  
NO. ME7708)

Dear Mr. Heflin:

By letter dated December 15, 2011, Union Electric Company submitted an application pursuant to Title 10 of the *Code of Federal Regulations* Part 54 for renewal of Operating License NPF-30 for the Callaway Plant, Unit 1. The staff of the U.S. Nuclear Regulatory Commission (NRC or the staff) is reviewing this application in accordance with the guidance in NUREG-1800, "Standard Review Plan for Review of License Renewal Applications for Nuclear Power Plants." During its review, the staff has identified areas where additional information is needed to complete the review. The staff's requests for additional information are included in the enclosure. Further requests for additional information may be issued in the future.

Items in the enclosure were discussed with Sarah G. Kovaleski, of your staff, and a mutually agreeable date for the response is within 30 days from the date of this letter. If you have any questions, please contact me by telephone at 301-415-2946 or by e-mail at [Samuel.CuadradoDeJesus@nrc.gov](mailto:Samuel.CuadradoDeJesus@nrc.gov).

Sincerely,

**/RA/**

Samuel Cuadrado de Jesús, Project Manager  
Projects Branch 1  
Division of License Renewal  
Office of Nuclear Reactor Regulation

Docket No. 50-483

Enclosure:  
As stated

cc w/encl: Listserv

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NAME	YEdmonds	SCuadrado	DMorey	SCuadrado
DATE	06 / 07 /12	06 / 06 /12	06 / 07 /12	06 / 11 /12

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Letter to A. Heflin from S. Cuadrado De Jesus dated June 11, 2012.

SUBJECT: RECEIPT AND AVAILABILITY OF THE LICENSE RENEWAL APPLICATION FOR  
THE CALLAWAY PLANT, UNIT 1

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VDricks, RIV

LUselding, RIV

DDumbacher, RIV

CALLAWAY PLANT UNIT 1  
LICENSE RENEWAL APPLICATION  
REQUEST FOR ADDITIONAL INFORMATION

**2.2 Plant-Level Scoping Results**

**RAI 2.2-1**

The applicant's scoping criteria is described in Section 2.1 of the Callaway Plant, Unit 1 (Callaway) License Renewal Application (LRA). LRA Section 2.2, Table 2.2-1, "Scoping Results," provides the results of applying the license renewal scoping criteria to systems, structures, and components (SSCs). The following systems, as described in the Updated Final Safety Analysis Report (UFSAR), could not be located in LRA Table 2.2-1.

<b>UFSAR Section</b>	<b>System</b>
18.1.17 Plant Safety Parameter Display System	Safety Parameter Display System

The staff requests that the applicant justify its exclusion of the above system from LRA Table 2.2-1.

**2.3.3.5 Service Water System**

**RAI 2.3.3.5-1**

LRA Section 2.1 describes the applicant's scoping methodology, which specifies how systems or components were determined to be included in scope of license renewal. The staff confirms the inclusion of all components subject to aging management review (AMR) by reviewing the results of the screening of components within the license renewal boundary. For the drawing locations identified in the table below, the continuation of piping within the scope of license renewal could not be located.

<b>License Renewal Boundary Drawing Number &amp; Location</b>	<b>Continuation Issue</b>
LR-CW-EA-M-22EA01, location E-8	A section of (a)(2) piping (from line 036"-HBD-8" downstream of valve V160) continues to M-22KB02, location B-8, which was not submitted as part of the application.
LR-CW-EA-M-22EA01, locations C-6/7	A section of (a)(2) piping (from line 039"-HBD-8" upstream of valve V159) continues to M-22KB02, location B-8, which was not submitted as part of the application.

The staff requests the applicant to provide sufficient information to locate the license renewal boundary. If the continuation cannot be shown on license renewal boundary drawings, then provide additional information describing the extent of the scoping boundary and verify whether or not there are additional AMR component types between the continuation and the termination of the scoping boundary. If the scoping classification of a section of the piping changes over the continuation, provide additional information to clarify the change in scoping classification.

### **2.3.3.8 Compressed Air System**

#### **RAI 2.3.3.8-1**

In LRA Section 2.1.2.2 the applicant indicates nonsafety-related SSCs attached to safety-related SSCs are in scope of license renewal for 10 CFR 54.4(a)(2) up to the first seismic anchor past the safety/nonsafety interface. On the following drawings the staff could not locate seismic anchors on the nonsafety related lines:

<b>License Renewal Application Drawing Number &amp; Location</b>	<b>10 CFR 54.4(a)(2) Pipe Line(s) or Identifier</b>
LR-CW-KA-M-22KA01, location B-1	317-JDD-1" downstream of valve V277 (No license renewal boundary drawing M-22KA09 to confirm seismic endpoint)
LR-CW-KA-M-22KA04, location F-4	495-JDD- 1/2" downstream of valve V474
LR-CW-KA-M-22KA04, location F-4	Upstream of valve V474 and connected to the 1/2" line with an endpoint shown as RB2
LR-CW-KA-M-22KA04, location F-4	Downstream of valve V483 and connected to the 1/2" line with an endpoint shown as RB17

Provide additional information to locate the seismic anchors or anchored components between the safety/non-safety interface and the end of the 10 CFR 54.4(a)(2) scoping boundary.

### **2.3.3.20 Fire Protection System**

The staff has identified that the fire protection systems and components discussed in the following sections have been excluded from the scope of license renewal and an AMR. These systems and components that were not included in the license renewal boundaries appear to have fire protection intended functions required for compliance with 10 CFR 50.48, "Fire protection," as stated in 10 CFR 54.4. Therefore, in order to complete our review, the staff requires responses to the following RAIs:

**RAI 2.3.3.20-1**

The following LRA boundary drawings shows the following fire water systems/components as out of scope (i.e., not colored in green):

<u>LRA Drawing</u>	<u>Systems/Components</u>	<u>Location</u>
LR-CW-KC-M-22KC01	Turbine Generator Bearing	A4
	North Area Below Turbine (El. 2000'-0")	C5
	North Area Below Turbine (El. 2033'-0")	C4
	Unit 1 Auxiliary Transformers	D2
	XMA02, XMA01B ø B, and XMA01C ø C,	
	Main Transformers (3) XMA01A ø A	F2
	Station Service Transformers, XPB03 and XPB04	H5
	Condenser Pit	A6
	South Area Below Turbine (El. 2000'-0")	D7
	South Area Below Turbine (El. 2033'-0")	A7
	Hydrogen Seal Oil Unit	D2
	LR-CW-KC-M-22KC02	Auxiliary Boiler Room

The staff requests that the applicant verify whether the fire water systems/components listed above are in the scope of license renewal in accordance with 10 CFR 54.4(a) and whether they are subject to an AMR in accordance with 10 CFR 54.21(a)(1). If they are excluded from the scope of license renewal and are not subject to an AMR, the staff requests that the applicant provide justification for the exclusion.

**RAI 2.3.3.20-2**

Tables 2.3.3-20 and 3.3.2-20 of the LRA do not include the following fire protection systems and components:

- fire hose connections and hose racks
- sprinklers
- diesel fire pump heat exchange (bonnet, shell, and tubes)
- lubricating oil collection system components for each reactor coolant pump
- floor drains and curbs for fire-fighting water
- dikes for oil spill confinement
- sprinkler system water curtain in the auxiliary building equipment hatchway
- filter housing
- diesel generator room roof heat vents

The staff requests that the applicant verify whether the fire protection systems and components listed above are in the scope of license renewal in accordance with 10 CFR 54.4(a) and whether they are subject to an AMR in accordance with 10 CFR 54.21(a)(1). If they are excluded from the scope of license renewal and are not subject to an AMR, the staff requests that the applicant provide justification for the exclusion.

### **RAI 2.3.3.20-3**

By letter dated August 29, 2011, Union Electric Company submitted a license amendment to transition the Callaway, existing fire protection program to a risk-informed, performance-based program based on National Fire Protection Association Standard 805 (NFPA 805), "Performance-Based Standard for Fire Protection for Light Water Reactor Electric Generating Plants," 2001 Edition, in accordance with 10 CFR 50.48(c).

The staff requests that the applicant provide a gap analysis of LRA Tables 2.3.3-20 and 3.3.2-20 identifying differences between the existing and NFPA 805 post-transition changes. Summarize the results and the impacts of these gaps on the fire protection program described in LRA Tables 2.3.3-20 and 3.3.2-20, as the basis for transitioning to the NFPA 805 nuclear safety capabilities. Also list the fire protection systems and components including structural fire barriers, (e.g., fire walls and slabs, fire doors, fire barrier penetration seals, fire dampers, fire barrier coatings/wraps, equipment/personnel hatchways and plugs, metal siding), that will be added or removed based on the NFPA 805 transition in the scope of license renewal in accordance with 10 CFR 54.4(a) and whether they are subject to an AMR in accordance with 10 CFR 54.21(a)(1).

### **2.3.3.22 Standby Diesel Generator Engine System**

#### **RAI 2.3.3.22-1**

License renewal boundary drawings LR-CW-M-22KJ02 and LR-CW-M-22KJ05, locations F-8 and H-8, show turbocharger casings that are in scope for 10 CFR 54.4(a)(1) which are not listed in Table 2.3.3-22 as components subject to an AMR.

The staff requests that the applicant justify why the turbocharger casing component type was not included in LRA Table 2.3.3-22.

#### **RAI 2.3.3.22-2**

License renewal boundary drawings LR-CW-M-22KJ02 and LR-CW-M-22KJ05, location G-7, show an air pressure supply manifold housing that is in scope for 10 CFR 54.4(a)(1) which is not listed in Table 2.3.3-22 as a component subject to an AMR.

The staff requests that the applicant justify why the air supply manifold housing component type was not included in LRA Table 2.3.3-22.

#### **RAI 2.3.3.22-3**

License renewal boundary drawings LR-CW-M-22KJ02 and LR-CW-M-22KJ05, locations A-6 and C-6, show pulsation dampers that are in scope for 10 CFR 54.4(a)(2) which are not listed in LRA Table 2.3.3-22 as components subject to an AMR.

The staff requests that the applicant justify why the pulsation damper component type was not included in LRA Table 2.3.3-22.

**RAI 2.3.3.22-4**

License renewal boundary drawings LR-CW-M-22KJ03 and LR-CW-M-22KJ06, location F-4, show lube oil ejector casings that are in scope for 10 CFR 54.4(a)(1) which are not listed in LRA Table 2.3.3-22 as component types subject to an AMR.

The staff requests that the applicant justify why the ejector casing component type was not included in LRA Table 2.3.3-22.

**RAI 2.3.3.22-5**

License renewal boundary drawings LR-CW-M-22KJ03 and LR-CW-M-22KJ06, location F-5, show oil separator casings that are in scope for 10 CFR 54.4 (a)(1) which are not listed in LRA Table 2.3.3-22 as components subject to an AMR.

The staff requests that the applicant justify why the oil separator casing component type was not included in LRA Table 2.3.3-22.

**RAI 2.3.3.22-6**

License renewal boundary drawings LR-CW-M-22KJ02 and LR-CW-M-22KJ05, location G-3, show four “XJ” components that are in scope for 10 CFR 54.4(a)(1) that cannot be identified and reviewed. It is uncertain what these components are, what function(s) they perform, and if they are listed in LRA Table 2.3.3-22 as component types subject to an AMR.

The staff requests that the applicant clarify what the components are and their functions, and justify why the component type was not included in LRA Table 2.3.3-22.

**2.3.3.27 Floor and Equipment Drainage System**

**RAI 2.3.3.27-1**

License renewal boundary drawing LR-CW-LF-M-22LF01, location H-4, shows A10-XND-4” piping within the scope of license renewal for 10 CFR 54.4(a)(2). However, the continuation from license renewal boundary drawing LR-CW-LF-M-22LF02, location A-4, depicts the piping within the scope of license renewal for 10 CFR 54.4(a)(3).

The staff requests the applicant to provide additional information to clarify the scoping classification of pipe section A10-XND-4”.

**2.3.4 Steam and Power Conversion Systems**

**RAI 2.3.4-1**

LRA Section 2.1 describes the applicant’s scoping methodology, which specifies how systems or components were determined to be included in scope of license renewal. The staff confirms



the inclusion of all components subject to AMR by reviewing the results of the screening of components within the license renewal boundary. For the drawing locations identified in the table below, the continuation of piping in scope for license renewal could not be located.

License Renewal Boundary Drawing Number & Location	Continuation Issue
<b>Section 2.3.4.2 Main Steam Supply System</b>	
LR-CW-AB-M-22AB02, location B-6	“F”-HBD-2 & I”-HBD-2, a continuation is not provided
<b>Section 2.3.4.4 Steam Generator Blowdown System</b>	
LR-CW-BM-M-22BM01, locations B-5, C-5, E-5 & G-5	Downstream continuation of valves V039, V028, V017 & V006 continued to drawing M- 22RM01. Drawing M-22RM01 was not provided for review.
<b>Section 2.3.4.5, Auxiliary Feedwater System</b>	
LR-CW-AL-M-22FC02, location D-4	Downstream of valve V998 a continuation was not provided.

The staff requests the applicant to provide sufficient information to locate the license renewal boundary. If the continuation cannot be shown on license renewal boundary drawings, then provide additional information describing the extent of the scoping boundary and verify whether or not there are additional AMR component types between the continuation and the termination of the scoping boundary. If the scoping classification of a section of the piping changes over the continuation, provide additional information to clarify the change in scoping classification.

**2.3.4.2 Main Steam Supply System**

**RAI 2.3.4.2-1**

License renewal boundary drawing LR-CW-AE-M-22AB02 depicts main steam piping in the auxiliary building highlighted in green, which indicates that the piping is within scope of license renewal for 10 CFR 54.4(a)(1). However, at locations C-2, D-2, F-2, and G-2, four sections of main steam piping exit the auxiliary building and continue into the turbine building. As described by Note 1 on license renewal boundary drawing LR-CW-AE-M-22AB02, the scoping classification change and seismic portion of the main steam piping occurs at the first weld within the turbine building wall. Nonsafety-related components were not identified within scope of license renewal for 10 CFR 54.4(a)(2) inside the turbine building on the license renewal boundary drawing, as required by the applicant’s scoping methodology described in LRA Section 2.1.2.2.

The staff requests the applicant to provide justification for excluding the nonsafety-related components in the turbine building, which may be in proximity of the (a)(1) main steam piping, from scope of license renewal for 10 CFR 54.4(a)(2).

### **2.3.4.3 Main Feedwater System**

#### **RAI 2.3.4.3-1**

License renewal boundary drawing LR-CW-AE-M-22AE01 depicts solenoid valves, which are highlighted in green, at locations A-7, B-7, C-7, D-7, E-7, F-7, G-7, and H-7. These solenoid valves are accompanied on the license renewal boundary drawing with license renewal Note 1, which indicates that these valves are within scope of license renewal under 10 CFR 54.4(a)(1). However, there were not any nonsafety-related components, either directly attached or within spatial proximity of the solenoid valves, identified on license renewal boundary drawing LR-CW-AE-M-22AE01. The exclusion of these nonsafety-related components from scope of license renewal appears to be inconsistent with the scoping methodology described in LRA Section 2.1.2.2.

The staff requests the applicant to provide justification for excluding the nonsafety-related components near the solenoid valves from scope of license renewal for 10 CFR 54.4(a)(2) on license renewal boundary drawing LR-CW-AE-M-22AE01.

### **2.5 Scoping and Screening Results: Electrical and Instrumentation and Control Systems**

#### **RAI 2.5-1**

In the license renewal application, the applicant described the station blackout recovery paths for license renewal. As the licensee did not specifically exclude the associated control circuits and structures for the switchyard circuit breakers, it is assumed that these components are included in the scope of license renewal. In accordance with Title 10 of the *Code of Federal Regulations* (10 CFR) Section 54.4(a)(3) and License Renewal Sections 2.1.3.1.3 and 2.5.2.1.1 of the Standard Review Plan, the control circuits and structures associated with the circuit breaker should be in the scope of license renewal. Please confirm that these components are within the scope of license renewal.