UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

August 9, 2012

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

SUBJECT: CALLAWAY PLANT, UNIT 1 – REQUEST FOR ADDITIONAL INFORMATION RE: PROPOSED CHANGE TO TECHNICAL SPECIFICATION 3.6.6, "CONTAINMENT SPRAY AND COOLING SYSTEMS" (TAC NO. ME6645)

Dear Mr. Heflin:

By application dated June 30, 2011, to the U.S. Nuclear Regulatory Commission (NRC) (Agencywide Documents Access and Management System (ADAMS) Accession No. ML111820367), Union Electric Company (the licensee) requested a license amendment for Callaway Plant, Unit 1, to revise Technical Specification (TS) 3.6.6, "Containment Spray and Cooling Systems," Surveillance Requirement (SR) 3.6.6.3 for verifying the minimum required containment cooling train cooling water flow rate.

The NRC staff has reviewed the information provided in your application and determined that additional information is required in order to complete its review. The enclosed questions were provided to Mr. S. Maglio of your staff on August 7, 2012. Please provide a response to the questions by September 10, 2012.

The NRC staff considers that timely responses to requests for additional information help ensure sufficient time is available for staff review and contribute toward the NRC's goal of efficient and effective use of NRC staff resources. If circumstances result in the need to revise the requested response date, please contact me at 301-415-2296 or via e-mail at Fred.Lyon@nrc.gov.

Sincerely,

for Kaly Quan

Carl F. Lyon, Project Manager
Plant Licensing Branch IV
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-483

Enclosure:
As stated

cc w/encl: Distribution via Listserv

REQUEST FOR ADDITIONAL INFORMATION

PROPOSED CHANGE TO TECHNICAL SPECIFICATION 3.6.6, "CONTAINMENT SPRAY AND COOLING SYSTEMS"

CALLAWAY PLANT, UNIT 1

DOCKET NO. 50-483

Background

By application dated June 30, 2011, to the U.S. Nuclear Regulatory Commission (NRC), Union Electric Company (the licensee) requested an amendment to revise Technical Specification (TS) 3.6.6, "Containment Spray and Cooling Systems," Surveillance Requirement (SR) 3.6.6.3 for verifying the minimum required containment cooling train cooling water flow rate. SR 3.6.6.3 requires verification that containment cooling train cooling water flow rate is ≥ 2200 gallons per minute (gpm). The TS Bases state, in part, that

> Verifying that each containment cooling train ESW [essential service water] cooling rate flow is ≥ 2200 gpm provides assurance that the design flow rate assumed in the safety analysis will be achieved.

The Callaway Plant, Unit 1 Final Safety Analysis Report (FSAR) Section 6.2.2.2.1.1, "Safety Design Basis," for the containment cooling system (CtCS) states, in part, that

> The CtCS, in conjunction with the CSS [containment spray system], is capable of removing sufficient heat energy and subsequent decay heat from the containment atmosphere following the LOCA [loss-of-coolant accident] or MSLB [main steamline break] accident to maintain the containment pressure below design values.

Issue

The licensee is requesting a change to SR 3.6.6.3 from requiring a flow rate ≥ 2200 gpm to that which is "within limits." The flow rate of 2200 gpm is one of the design inputs in the safety analysis mentioned above. The licensee proposes to change the TS Bases to read "within limits specified in plant flow balance procedures and calculations."

Request

The NRC staff has reviewed the information provided by the licensee in its letter dated June 30, 2011, and determined that additional information is necessary to complete the review of the amendment request. Please provide a response which addresses the following questions.

Balance-of-Plant Branch (SBPB) Questions

1. Please describe the methodology of the safety analysis where 2200 gpm was determined to provide assurance that the safety functions of the containment cooling

system will be performed and provide all the design inputs and design assumptions of that safety analysis.

2. Please describe the methodology of the safety analysis where the "within limits" flow rate will be determined to provide assurance that the safety functions of the containment cooling system will be performed and provide all the design inputs and design assumptions of that safety analysis.

3. Please identify and justify any differences in design input, design assumptions, and methodology between 1 and 2 above.

4. Please explain what criteria will be used to specify a change to the flow rate is "within limits" and how those criteria will be obtained.

5. Please confirm that the procedure for determining that a flow rate value must be changed and the steps to implement the change are documented in a controlled procedure.

Technical Specifications Branch (STSB) Questions

1. The CtCS satisfies Criterion 3 of paragraph 50.36(c)(2)(ii) of Title 10 of the *Code of Federal Regulations* (10 CFR) for inclusion in the TSs. SRs, in accordance with 10 CFR 50.36(c)(3), must be included that assure that the necessary quality of the system is maintained and that the limiting condition for operation (LCO) will be met. SR 3.6.6.3, as currently structured in the TSs, provides assurance that the design flow rate necessary to provide the heat removal capability assumed in the safety analyses will be achieved and that the LCO is met. Removing the design flow rate from SR 3.6.6.3, as proposed, will create an SR that provides no assurance that the design flow rate assumed in the safety analyses will be achieved, since neither the surveillance acceptance criteria nor the methodology for determining the acceptance criteria are included in the TSs. Please state how the proposed new SR 3.6.6.3 would meet the regulatory requirements of 10 CFR 50.36(c)(3).

2. Please describe the Callaway program for complying with the guidance of NRC Generic Letter 89-13, "Service Water Problems Affecting Safety Related Equipment," dated July 18, 1989 (ADAMS Accession No. ML031150348), and any changes to this program necessary to be consistent with the proposed deletion of the numerical value of the emergency service water system flow rate from the Callaway TSs.

3. Please discuss any changes to plant operation or procedures necessary to comply with the guidance of NRC Generic Letter 96-06, "Assurance of Equipment Operability and Containment Integrity during Design-Basis Accident Conditions," dated September 30, 1996 (ADAMS Accession No. ML031110021). Discuss why the possibility of problems such as water hammer and two-phase flow will not be increased by this change. Please clarify if water hammer and two-phase flow are part of the consideration in changing the service water flow rate.

August 9, 2012

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

SUBJECT: CALLAWAY PLANT, UNIT 1 – REQUEST FOR ADDITIONAL INFORMATION RE: PROPOSED CHANGE TO TECHNICAL SPECIFICATION 3.6.6, "CONTAINMENT SPRAY AND COOLING SYSTEMS" (TAC NO. ME6645)

Dear Mr. Heflin:

By application dated June 30, 2011, to the U.S. Nuclear Regulatory Commission (NRC) (Agencywide Documents Access and Management System (ADAMS) Accession No. ML111820367), Union Electric Company (the licensee) requested a license amendment for Callaway Plant, Unit 1, to revise Technical Specification (TS) 3.6.6, "Containment Spray and Cooling Systems," Surveillance Requirement (SR) 3.6.6.3 for verifying the minimum required containment cooling train cooling water flow rate.

The NRC staff has reviewed the information provided in your application and determined that additional information is required in order to complete its review. The enclosed questions were provided to Mr. S. Maglio of your staff on August 7, 2012. Please provide a response to the questions by September 10, 2012.

The NRC staff considers that timely responses to requests for additional information help ensure sufficient time is available for staff review and contribute toward the NRC's goal of efficient and effective use of NRC staff resources. If circumstances result in the need to revise the requested response date, please contact me at 301-415-2296 or via e-mail at Fred.Lyon@nrc.gov.

Sincerely,
/RA by KKalyanam for/

Carl F. Lyon, Project Manager
Plant Licensing Branch IV
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-483

Enclosure:
As stated

cc w/encl: Distribution via Listserv

DISTRIBUTION:

PUBLIC	RidsNrrDssScvb Resource	RidsRgn4MailCenter Resource
LPLIV Reading	RidsNrrDssStsb Resource	MHamm, NRR/DSS/STSB
RidsAcrsAcnw_MailCTR Resource	RidsNrrLAJBurkhardt Resource	GPurciarello, NRR/DSS/SBPB
RidsNrrDorlLpl4 Resource	RidsNrrPMCallaway Resource	ASallman, NRR/DSS/SCVB
RidsNrrDssSbpb Resource	RidsOgcRp Resource	

ADAMS Accession No.: ML12220A211 *email dated August 3, 2012

OFFICE	NRR/LPL4/PM	NRR/LPL4/LA	DSS/STSB/BC	DSS/SBPB/BC	NRR/LPL4/BC	NRR/LPL4/PM
NAME	FLyon	JBurkhardt	REliott*	GCasto*	MMarkley	FLyon (KKalyanam for)
DATE	8/8/12	8/8/12	8/3/12	8/3/12	8/9/12	8/9/12

OFFICIAL RECORD COPY