Ameren MISSOURI

Callaway Plant

July 13, 2015

ULNRC-06233

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

Ladies and Gentlemen:

DOCKET NUMBER 50-483
CALLAWAY PLANT UNIT 1
UNION ELECTRIC CO.
RENEWED FACILITY OPERATING LICENSE NPF-30
SUBMITTAL OF REQUESTED INFORMATION

By telephone call received from the NRC Project Manager for Callaway Plant on July 9, 2015, Ameren Missouri was requested to provide a copy of FSAR Section 3.1.2 from the original Callaway FSAR, i.e., the version in effect at the time of original licensing of the facility. The information is needed for resolution of a question being addressed by the NRC staff in connection with the plant's established licensing basis.

Pursuant to the NRC's request, the attached is being provided under oath and affirmation. Attached is FSAR Section 3.1.2 from Revision 1 of the Callaway FSAR dated September 1980, as well as Revision OL-0 of the FSAR, dated June 1986. Revision 1 was submitted to the NRC during the early licensing phase for Callaway, i.e., after submittal of the application for an Operating License but well before receipt of the Operating License. Revision OL-0 is the version that was in effect after receipt of the Operating License, up to the first FSAR update provided pursuant to 10 CFR 50.71(e).

For any questions regarding the requested information, please contact Tom Elwood at (314) 225-1905.

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

Sincerely,

Executed on: 7/13/2015

Scott A. M

Scott A. Maglio
Manager, Regulatory Affairs

TBE/nls

Attachments:

1. FSAR Section 3.1.2 from FSAR Rev. 1
2. FSAR Section 3.1.2 from FSAR Rev. OL-0

cc: Mr. Marc L. Dapas
Regional Administrator
U. S. Nuclear Regulatory Commission
Region IV
1600 East Lamar Boulevard
Arlington, TX 76011-4511

Senior Resident Inspector
Callaway Resident Office
U.S. Nuclear Regulatory Commission
8201 NRC Road
Steedman, MO 65077

Mr. L. John Klos
Project Manager, Callaway Plant
Office of Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Mail Stop O-8B1
Washington, DC 20555-2738

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a single valve stem packing failure, or other single failure mechanisms considered credible by a systematic analysis of system components. The probability of a large break in a piping system (e.g., rupture of ECCS piping), subsequent to the original large LOCA pipe break, is considered to be sufficiently low that it need not be postulated.

Single failures of passive components in electrical systems are assumed in designing against a single failure.

3.1.2 ADDITIONAL SINGLE FAILURE ASSUMPTIONS

In designing for and analyzing for a DBA (i.e., loss-of-coolant accident, main steam line break, fuel handling accident, or steam generator tube rupture), the following assumptions are made, in addition to postulating the initiating event.

a. The events are assumed not to result from a tornado, hurricane, flood, fire, loss of offsite power, or earthquake.

b. Any one of the following occurs:

   1. During the short term of an accident, a single failure of any active mechanical component. The *short term is defined as less than 24 hours following an accident*, or

   2. During the short term of an accident, a single failure of any active or passive electrical component, or

   3. A single failure of passive components associated with long-term cooling capability, assuming that a single active failure has not occurred during the short term. *Long-term cooling applies to a time* duration greater than 24 hours.

c. No reactor coolant system transient is assumed, preceding the postulated reactor coolant system piping rupture.

d. No operator action is assumed to be taken by plant operators to correct problems during the first 10 minutes following the accident.

e. All offsite power is simultaneously lost and is restored within 7 days.

f. No simultaneous failures are assumed to occur at other units on multiunit sites.

g. For a LOCA, for additional safety no credit is taken for the functioning of nonseismic Category I components.

In the design and analysis performed for provision of protection of safety-related equipment from hazards and events (tornadoes, floods, missiles, pipe breaks, fires, and seismic events) which could reasonably be expected, the following assumptions were made:

a. Should the event result in a turbine or reactor trip, loss of offsite power is assumed, and the plant will be placed in a standby condition.

b. If required by a limiting condition of operation (per Chapter 16.0) or if the recovery from the event will cause the plant to be shutdown for an extended period of time, the plant will be taken to a cold shutdown (CSD) condition.

c. Redundancy or diversity of systems and components is provided to enable continued operation at hot standby or to cool the reactor to a CSD condition. If required, it is assumed that temporary repairs can be made to circumvent damages resulting from the hazard. All available systems, including non-safety-related systems and those systems requiring operator action, may be employed to mitigate the consequences of the hazard.

   In determining the availability of the systems required to mitigate the consequences of a hazard and those required to place the reactor in a safe condition, the direct consequences of the hazard are considered. The feasibility of carrying out operator actions are based on ample time and adequate access to the controls, motor control center, switchgear, etc., associated with the component required to accomplish the proposed action.

d. When the postulated hazard occurs and results in damage to one of two or more redundant or diverse trains, single failures of components in other trains (and associated supporting trains) are not assumed. The postulated hazard is precluded, by design, from affecting the opposite train or from resulting in a DBA. For the situation in which a hazard affects a safety-related component, the event and subsequent activities are governed by Technical Specification requirements in effect when that component is not functional.

e. When evaluating the effects of any earthquake, no other major hazard or event is assumed, and no seismic Category I equipment is assumed to fail as a result of the earthquake. Certain nonseismic Category I components are designed and constructed to ensure that their failure will not reduce the functioning of a safety-related component to an unacceptable safety level. This criterion meets the intent of Regulatory Guide 1.29, Position C.2. Evaluation of component failure includes drop impact forces and secondary effects, such as spray and flooding from piping failure.

to that which results from a single sprung flange, a single pump seal failure, a single valve stem packing failure, or other single failure mechanisms considered credible by a systematic analysis of system components. The probability of a large break in a piping system (e.g., rupture of ECCS piping), subsequent to the original large LOCA pipe break, is considered to be sufficiently low that it need not be postulated.

Single failures of passive components in electrical systems are assumed in designing against a single failure.

3.1.2 ADDITIONAL SINGLE FAILURE ASSUMPTIONS

In designing for and analyzing for a DBA (i.e., loss-of-coolant accident, main steam line break, fuel handling accident, or steam generator tube rupture), the following assumptions are made, in addition to postulating the initiating event.

a. The events are assumed not to result from a tornado, hurricane, flood, fire, loss of offsite power, or earthquake.

b. Any one of the following occurs:

   1. During the short term of an accident, a single failure of any active mechanical component. The short term is defined as less than 24 hours following an accident, or

   2. During the short term of an accident, a single failure of any active or passive electrical component, or

   3. A single failure of passive components associated with long-term cooling capability, assuming that a single active failure has not occurred during the short term. Long-term cooling applies to a time duration greater than 24 hours.

c. No reactor coolant system transient is assumed, preceding the postulated reactor coolant system piping rupture.

d. No operator action is assumed to be taken by plant operators to correct problems during the first 10 minutes following the accident.

e. All offsite power is simultaneously lost and is restored within 7 days.

f. For a LOCA, for additional safety no credit is taken for the functioning of nonseismic Category I components.

In the design and analysis performed for provision of protection of safety-related equipment from hazards and events (tornadoes, floods, missiles, pipe breaks, fires, and seismic events) which could reasonably be expected, the following assumptions were made:

a. Should the event result in a turbine or reactor trip, loss of offsite power is assumed, and the plant will be placed in a hot standby condition.

b. If required by a Technical Specification limiting condition for operation or if the recovery from the event will cause the plant to be shut down for an extended period of time, the plant will be taken to a cold shutdown (CSD) condition.

c. Redundancy or diversity of systems and components is provided to enable continued operation at hot standby or to cool the reactor to a CSD condition. If required, it is assumed that temporary repairs can be made to circumvent damages resulting from the hazard. All available systems, including nonsafety-related systems and those systems requiring operator action, may be employed to mitigate the consequences of the hazard.

   In determining the availability of the systems required to mitigate the consequences of a hazard and those required to place the reactor in a safe condition, the direct consequences of the hazard are considered. The feasibility of carrying out operator actions are based on ample time and adequate access to the controls, motor control center, switchgear, etc., associated with the component required to accomplish the proposed action.

d. When the postulated hazard occurs and results in damage to one of two or more redundant or diverse trains, single failures of components in other trains (and associated supporting trains) are not assumed. The postulated hazard is precluded, by design, from affecting the opposite train or from resulting in a DBA. For the situation in which a hazard affects a safety-related component, the event and subsequent activities are governed by Technical Specification requirements in effect when that component is not functional.

e. When evaluating the effects of any earthquake, no other major hazard or event is assumed, and no seismic Category I equipment is assumed to fail as a result of the earthquake. Certain nonseismic Category I components are designed and constructed to ensure that their failure will not reduce the functioning of a safety-related component to an unacceptable safety level.

This criterion meets the intent of Regulatory Guide 1.29, Position C.2. Evaluation of component failure includes drop impact forces and secondary effects, such as spray and flooding from piping failure.

3.1.3 OVERALL REQUIREMENTS

CRITERION 1 - QUALITY STANDARDS AND RECORDS

"Structures, systems, and components important to safety shall be designed, fabricated, erected, and tested to quality standards commensurate with the importance of the safety functions to be performed. Where generally recognized codes and standards are used, they shall be identified and evaluated to determine their applicability, adequacy, and sufficiency and shall be supplemented or modified as necessary to assure a quality product in keeping with the required safety function. A quality assurance program shall be established and implemented in order to provide adequate assurance that these structures, systems, and components will satisfactorily perform their safety functions. Appropriate records of the design, fabrication, erection, and testing of structures, systems, and components important to safety shall be maintained by or under the control of the nuclear power unit licensee throughout the life of the unit."

DISCUSSION

The quality assurance programs of SNUPPS and the individual utilities, together with the quality assurance, quality engineering, and quality control programs of the major contractors and their vendors, ensure that structures, systems, and components important to safety are designed, fabricated, erected, and tested to quality standards commensurate with the safety functions to be performed. This is accomplished through the use of recognized codes, standards, and design criteria. As necessary, additional supplemental standards, design criteria, and requirements are developed by SNUPPS and the major contractors' engineering organizations. Appropriate records associated with the engineering and design, fabrication, erection, and testing which document the compliance with recognized codes, standards, and design criteria are maintained throughout the life of the units either by or under the control of the applicants. Quality assurance is described in Chapter 17.0.

The principal design criteria, design bases, codes, and standards applied to the facility are described in Section 3.2. Additional detail may be found in the pertinent section of the FSAR dealing with structures, systems, and components important to safety, e.g., the containment as described in Section 3.8.2.

CRITERION 2 - DESIGN BASES FOR PROTECTION AGAINST NATURAL PHENOMENA

"Structures, systems, and components important to safety shall be designed to withstand the effects of natural phenomena such