

December 1, 2008

ULNRC-05563

U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Mail Stop P1-137
Washington, DC 20555-0001

10 CFR 50.90

Ladies and Gentlemen:



DOCKET NUMBER 50-483
CALLAWAY PLANT
UNION ELECTRIC COMPANY
ONE-TIME COMPLETION TIME EXTENSION
FOR ESSENTIAL SERVICE WATER (ESW) SYSTEM

- References: 1. NRC Letter dated October 31, 2008 from Mohan C. Thadani, Senior Project Manager, to Adam C. Heflin, Senior Vice President and Chief Nuclear Officer – Union Electric Company, “Callaway Plant, Unit 1 - Issuance of Amendment Re: One-Time Extension of Completion Time for Essential Service Water System Piping Replacement (TAC No. MD7252)”
2. AmerenUE Letter ULNRC-05445, “Application for Amendment to Facility Operating License NPF-30 – One Time Completion Time Extension for Essential Service Water (ESW) System,” dated October 31, 2007

By letter dated October 31, 2008 (Reference 1), the NRC transmitted to AmerenUE (Union Electric) License Amendment 186 to the Callaway Unit 1 Operating License (NPF-30). The license amendment revised Callaway Technical Specification (TS) 3.7.8, “Essential Service Water (ESW) System,” and TS 3.8.1, “AC Sources – Operating,” to allow a one-time extension of the allowed outage time (also referred to as the Completion Time) for each ESW train (and the associated diesel generator for each train) from 72 hours to 14 days. The extended Completion Time was requested to support planned replacement of the underground carbon steel piping in the ESW system with new piping made of high density polyethylene (HDPE) during plant operation. The license amendment was issued with a provision such that the extended Completion Time for each ESW train must be used prior to December 31, 2008.

The December 31, 2008 expiration date is consistent with what was requested per AmerenUE's original application letter dated October 31, 2007 (Reference 2), which was one of six letters supporting the amendment request leading to the issuance of Amendment 186. At the time of the Reference 2 letter it was anticipated that all of the underground ESW piping replacement and reconnection work would be completed in the 2008 calendar year. However, after excavation began last spring (2008) in preparation for the piping replacement, significant delays were experienced due to encountering unexpected underground piping/conduit obstructions and interferences. It was then decided to execute the extended ESW train outages subsequent to the refueling outage planned for this fall (Refuel 16) instead of before the refueling outage as originally anticipated. A plan was, therefore, developed in which it still appeared feasible to complete the piping replacement work before the end of 2008. The plan called for entering the extended LCO Completion Time for the 'A' ESW train shortly after resuming plant operation from the refueling outage, completing the piping replacement and reconnection for the 'A' train, and then entering the extended LCO Completion Time for the 'B' ESW train in order to complete the piping replacement and reconnection for that train well before the end of the year.

Various factors combined, however, to cause the 'A' ESW train outage to be delayed until December instead of early November as anticipated. These factors included a longer refueling outage (Refuel 16) than anticipated, a forced outage at the beginning of Cycle 17 due to unrelated equipment issues on the main feedwater pumps, the desire to rest site personnel between the end of the refueling outage and the start of the extensive ESW system train outages, and the fact that switchyard breaker MDV55 needed repair after concluding Refuel 16. The latter constituted a condition that would conflict with the risk management commitment made for Amendment 186 that no work would be done in the switchyard while the extended ESW Completion Times were in effect.

In light of these considerations, it has now been decided that only the 'A' ESW train piping replacement outage will be performed before the end of this year and that the 'B' train piping replacement will not be performed until early 2009. As already noted, however, Amendment 186 expires on December 31, 2008. Thus, while the 'A' ESW train outage can still be executed under the provisions of Amendment 186, an additional, separate license amendment must be processed to allow the 'B' ESW train piping replacement to be done under an extended TS Completion Time(s) in 2009.

Based on the above, therefore, AmerenUE hereby requests amendment of the Callaway Operating License to revise TS 3.7.8, "Essential Service Water (ESW) System," and TS 3.8.1, "AC Sources – Operating," to allow a one-time extension of the allowed outage time (Completion Time) for the 'B' ESW train (and its associated diesel generator) from 72 hours to 14 days. The expiration date for this requested amendment is identified as April 30, 2009 to allow sufficient time for executing the

extended ESW 'B' train outage in early spring. AmerenUE regrets the inconvenience of having to process another license amendment, but it should be noted that the requested follow-up amendment would be essentially identical to Amendment 186 except for the fact that the requested changes are only for the 'B' train (instead of both the 'A' and 'B' train).

Details regarding the requested license amendment are provided in the attachments to this letter. Attachment 1 provides a description of the proposed changes, including the justification for the proposed changes. Extensive reference is made to the amendment request that led to Amendment 186, as the probabilistic risk analysis (PRA) and other evaluations contained in the submittals made for the amendment request are still valid and essentially unchanged for this follow-up amendment request for the 'B' ESW train. Attachment 2 provides marked-up TS pages and Attachment 3 provides retyped TS pages reflecting the proposed changes. Proposed TS Bases changes are provided in Attachment 4 (for information only). They will be processed under Callaway's program for TS Bases updates per TS 5.5.14, "Technical Specification Bases Control Program," when the requested amendment is implemented. Finally, a summary of commitments (essentially identical to those provided in the amendment request for Amendment 186 with minor clarifications denoted by revision bars and change tracking features) is provided in Attachment 5. Based on the rationale discussed on pages 30-31 of the NRC Safety Evaluation attached to Reference 1 above, AmerenUE requests that these commitments not be made into license conditions.

It has been determined that this amendment application does not involve a significant hazard consideration as determined per 10 CFR 50.92. Pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the issuance of this amendment.

The Callaway Onsite Review Committee and a subcommittee of the Nuclear Safety Review Board have reviewed and approved the attached licensing evaluations and have approved the submittal of this amendment application.

AmerenUE requests approval of this amendment application prior to February 1, 2009, and further requests that the license amendment be made effective upon NRC issuance, to be implemented on or before April 16, 2009.

In accordance with 10 CFR 50.91, a copy of this amendment application is being provided to the designated Missouri State official. If you have any questions on this amendment application, please contact me at (573) 676-8129, or Mr. Scott Maglio at (573) 676-8719.

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

Very truly yours,

Executed on: 12-01-2008



Luke H. Graessle
Director, Operations Support

GGY/TBE/nls

Attachments:

- 1 - Evaluation
- 2 - Markup of Technical Specifications
- 3 - Retyped Technical Specifications
- 4 - Proposed Technical Specification Bases Changes (for information only)
- 5 - Summary of Regulatory Commitments

ULNRC-05563
December 1, 2008
Page 5

cc: U.S. Nuclear Regulatory Commission (Original and 1 copy)
Attn: Document Control Desk
Mail Stop P1-137
Washington, DC 20555-0001

Mr. Elmo E. Collins, Jr.
Regional Administrator
U.S. Nuclear Regulatory Commission
Region IV
611 Ryan Plaza Drive, Suite 400
Arlington, TX 76011-4005

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

Mr. Mohan C. Thadani (2 copies)
Licensing Project Manager, Callaway Plant
Office of Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Mail Stop O-8G14
Washington, DC 20555-2738

EVALUATION

1.0	DESCRIPTION	Page 2
2.0	PROPOSED CHANGES	Page 2
3.0	BACKGROUND	Page 3
4.0	TECHNICAL ANALYSIS	Page 4
5.0	REGULATORY SAFETY ANALYSIS	Page 5
5.1	NO SIGNIFICANT HAZARDS CONSIDERATION	Page 5
5.2	APPLICABLE REGULATORY REQUIREMENTS/CRITERIA	Page 7
6.0	ENVIRONMENTAL CONSIDERATION	Page 11
7.0	REFERENCES	Page 11

EVALUATION

1.0 DESCRIPTION

This amendment application submits a proposed change to TS 3.7.8, “Essential Service Water (ESW) System,” that would allow a one-time Completion Time extension from 72 hours to 14 days to be used prior to April 30, 2009 for replacing underground ESW ‘B’ train piping. A corresponding change is requested for the Completion Time of Required Action B. 4 of TS 3.8.1, “AC Sources – Operating.” The work on the underground ESW ‘A’ train piping will be completed prior to December 31, 2008 in accordance with approved Callaway License Amendment 186 (Reference 1). This amendment request changes only the expiration date for the one-time LCO Completion Time extension in order to complete the work on the underground ESW ‘B’ train piping.

2.0 PROPOSED CHANGES

The proposed change to TS 3.7.8, “Essential Service Water (ESW) System,” will revise the Note to the Completion Time of Required Action A.1 that requires the restoration of an inoperable ESW train to OPERABLE status. This new Note would allow a one-time Completion Time extension from 72 hours to 14 days to be used for the planned replacement of ESW ‘B’ train piping prior to April 30, 2009. The new Note would replace the existing Note that was established by Amendment 186 and would read:

“A one-time Completion Time of 14 days is allowed to support planned replacement of ESW ‘B’ train piping prior to April 30, 2009.”

Condition B of LCO 3.8.1 addresses an inoperable diesel generator (DG). A corresponding change to the Completion Time for Required Action B.4 in Condition B is required since TS 3.7.8 directs that the DG associated with an inoperable ESW train likewise be declared inoperable. A new Note matching that proposed above would allow a one-time Completion Time extension from 72 hours to 14 days to be used for the planned replacement of ESW ‘B’ train piping prior to April 30, 2009. The new Note would replace the existing Note that was established by Amendment 186, applicable to both Completion Times of Required Action B.4 of TS 3.8.1, and would read:

“A one-time Completion Time of 14 days is allowed to support planned replacement of ESW ‘B’ train piping prior to April 30, 2009.”

Associated Bases changes for the above will also be made per TS 5.5.14.

3.0 BACKGROUND

The TS changes proposed per this amendment application are a follow-up to the TS changes incorporated per Callaway License Amendment 186. As with this new application, the Amendment 186 changes were requested to support planned replacement of the underground ESW piping during plant operation. A one-time extension of the Completion Time for an inoperable ESW train (and an inoperable emergency diesel generator), to be allowed for each of the two trains, was requested to support the piping replacement.

At the time of the original amendment application (ULNRC-05445 - Reference 2), it was anticipated that all of the underground ESW piping replacement and reconnection work would be completed in the 2008 calendar year. However, after excavation began last spring (2008) in preparation for the piping replacement, significant delays were experienced due to encountering unexpected underground piping/conduit obstructions and interferences. It was then decided to execute the extended ESW train outages subsequent to the refueling outage planned for the fall 2008 season (Refuel 16) instead of before the refueling outage as originally anticipated. A plan was, therefore, developed in which it still appeared feasible to complete the piping replacement work before the end of 2008. The plan called for entering the extended LCO Completion Time for the 'A' ESW train shortly after resuming plant operation from the refueling outage, completing the piping replacement and reconnection for the 'A' train, and then entering the extended LCO Completion Time for the 'B' ESW train in order to complete the piping replacement and reconnection for that train well before the end of the year.

Various factors combined, however, to cause the 'A' ESW train outage to be delayed until December instead of early November as anticipated. These factors included a longer refueling outage (Refuel 16) than anticipated, a forced outage at the beginning of Cycle 17 due to unrelated equipment issues on the main feedwater pumps, the desire to rest site personnel between the end of the refueling outage and the start of the extensive ESW system train outages, and the fact that switchyard breaker MDV55 needed repair after concluding Refuel 16. The latter constituted a condition that would conflict with the risk management commitment made for Amendment 186 that no work would be done in the switchyard while the extended ESW Completion Times were in effect.

In light of these considerations, it was recently decided that only the 'A' ESW train piping replacement outage will be performed before the end of 2008 and that the 'B' train piping replacement will not be performed until early 2009. However, Callaway License Amendment 186 expires on December 31, 2008. Thus, while the 'A' ESW train outage can still be executed under the provisions of Amendment 186, an additional, separate license amendment must be processed to allow the 'B' ESW train piping replacement to be done under an extended TS Completion Time(s) in 2009.

Refer to the Background discussion (Section 3.0 of Attachment 1) contained in ULNRC-05445 dated October 31, 2007 (Reference 2) for further information.

4.0 TECHNICAL ANALYSIS

The Technical Analysis discussion (Section 4.0 of Attachment 1) contained in ULNRC-05445 dated October 31, 2007, as well as the additional information contained in the docketed correspondence cited in Reference 2, support the change requested herein. This amendment request, including the proposed expiration date of April 30, 2009, involves no changes to the final risk metrics (Δ CDF, ICCDP, Δ LERF, and ICLERP) reported in ULNRC-05520 (Attachment 1, NRC Enclosure 5 RAI Response, pages 4, 6, and 8), and accepted by the NRC on pages 18-20 and 23 of the Safety Evaluation attached to Amendment 186 (Reference 1). There are no planned plant changes scheduled to be implemented prior to April 30, 2009 which would significantly impact the Callaway PRA model or the risk results discussed above.

The findings in Section 3.0, Technical Evaluation, of the NRC Safety Evaluation for Amendment 186 (Reference 1) are unaffected except for the expiration date by which the ESW 'B' train work must be completed under its one-time Completion Time extension (from December 31, 2008 to April 30, 2009) and minor clarifications to the Tier 2 commitments contained in Attachment 5 to this amendment application. The latter are explained below.

Implementation questions on commitment numbers 2 and 3 have arisen as to the scope of the excluded activities on PRA-modeled equipment, especially with respect to TS Surveillances, and some preventive maintenance (PM) equipment status verifications, with a specified Frequency less than 56 days such that the 25% extension allowed by SR 3.0.2 would be less than the 14-day duration of the LCO outage on the ESW 'B' train. These activities are required to demonstrate equipment operability and LCO compliance during power operation and their specified Frequency may require them to be performed during the LCO outage. In this regard, non-intrusive TS surveillances and preventive maintenance (PM) equipment status verifications that do not affect the operability / functionality of PRA-modeled equipment will be allowed. Examples of these activities include system operating parameter verifications against specified acceptance criteria (e.g., temperature, pressure, flow rate, volume / level, primary and secondary coolant activity, boron concentration, offsite circuit indicated power, float voltage, electrolyte level, specific gravity, inverter and power distribution system voltage), instrumentation channel checks, daily power range neutron flux comparisons against the calorimetric heat balance calculation, RCS leak rate verifications, and various system alignment verifications (e.g., valves, dampers, breakers in their required positions; pumps verified to be operating and providing required flow rates). These activities do not directly manipulate the equipment, or change its operational status, and will only be permitted after an evaluation by the PRA staff.

An implementation question on commitment number 2 has also arisen with respect to exclusion of work within 20 feet of the protected train. This commitment was first made in the response to RAI 4 in ULNRC-05476 on fire risk. The value of 20 feet was chosen since this is the desired fire protection program separation between redundant trains

without intervening combustibles or fire hazards. As such, the work to be precluded refers to hot work that could be a fire event initiator.

Commitment number 4 is also clarified to allow security guard rounds, in addition to operator rounds, since they do not involve equipment manipulations.

5.0 REGULATORY SAFETY ANALYSIS

This section addresses the standards of 10 CFR 50.92 as well as the applicable regulatory requirements and acceptance criteria.

This amendment application submits a proposed change to TS 3.7.8, "Essential Service Water (ESW) System," that would allow a one-time Completion Time extension from 72 hours to 14 days to be used prior to April 30, 2009 for replacing underground ESW 'B' train piping. The same change is requested for the Completion Time of Required Action B. 4 of TS 3.8.1, "AC Sources – Operating." The work on the underground ESW 'A' train piping will be completed prior to December 31, 2008 in accordance with approved Callaway License Amendment 186. This amendment request changes only the expiration date for the one-time LCO Completion Time extension in order to complete the work on the underground ESW 'B' train piping.

5.1 No Significant Hazards Consideration (NSHC)

AmerenUE has evaluated whether or not a significant hazards consideration is involved with the proposed amendment by focusing on the three standards set forth in 10 CFR 50.92, "Issuance of amendment," Part 50.92(c), as discussed below:

1. Does the proposed change involve a significant increase in the probability or consequences of an accident previously evaluated?

Response: No

Overall protection system performance will remain within the bounds of the previously performed accident analyses since no hardware changes are proposed to the protection systems. The same reactor trip system (RTS) and engineered safety feature actuation system (ESFAS) instrumentation will continue to be used. The protection systems will continue to function in a manner consistent with the plant design basis. The use of polyethylene (PE) piping in the ESW system will result in improved system performance and enhanced system reliability, and will provide an acceptable level of quality and safety. There will be no changes to the essential service water (ESW) system or ultimate heat sink (UHS) surveillance and operating limits.

The proposed changes will not adversely affect accident initiators or precursors nor alter the design assumptions, conditions, and configuration of the facility or the manner in which the plant is operated and maintained. The proposed changes will not alter or prevent the ability of structures, systems, and components (SSCs) from performing their intended functions to mitigate the consequences of an initiating event within the assumed acceptance limits.

The proposed changes do not affect the way in which safety-related systems perform their functions.

All accident analysis acceptance criteria will continue to be met with the proposed changes. The proposed changes will not affect the source term, containment isolation, or radiological release assumptions used in evaluating the radiological consequences of an accident previously evaluated. The proposed changes will not alter any assumptions or change any mitigation actions in the radiological consequence evaluations in the FSAR.

The applicable radiological dose acceptance criteria will continue to be met.

Therefore, the proposed changes do not involve a significant increase in the probability or consequences of an accident previously evaluated.

2. Does the proposed change create the possibility of a new or different kind of accident from any accident previously evaluated?

Response: No

There are no proposed changes in the method by which any safety-related plant SSC performs its safety function. The proposed changes will not affect the normal method of plant operation or change any operating parameters. No equipment performance requirements will be affected. The proposed changes will not alter any assumptions made in the safety analyses.

No new accident scenarios, transient precursors, failure mechanisms, or limiting single failures will be introduced as a result of this amendment. There will be no adverse effect or challenges imposed on any safety-related system as a result of this amendment.

The proposed amendment will not alter the design or performance of the 7300 Process Protection System, Nuclear Instrumentation System, or Solid State Protection System used in the plant protection systems.

Therefore, the proposed changes do not create the possibility of a new or different accident from any accident previously evaluated.

3. Does the proposed change involve a significant reduction in a margin of safety?

Response: No

There will be no effect on those plant systems necessary to assure the accomplishment of protection functions. There will be no impact on the overpower limit, departure from nucleate boiling ratio (DNBR) limits, heat flux hot channel factor (F_Q), nuclear enthalpy rise hot channel factor ($F_{\Delta H}$), loss of coolant accident peak cladding temperature (LOCA PCT), peak local power density, or any other margin of safety. The applicable radiological dose consequence acceptance criteria will continue to be met.

The proposed changes do not eliminate any surveillances or alter the frequency of surveillances required by the Technical Specifications. None of the acceptance criteria for any accident analysis will be changed.

The proposed changes will have no impact on the radiological consequences of a design basis accident.

Therefore, the proposed changes do not involve a significant reduction in a margin of safety.

Conclusion:

Based on the above evaluation, AmerenUE concludes that the proposed amendment presents no significant hazards consideration under the standards set forth in 10 CFR 50.92(c) and, accordingly, a finding of "no significant hazards consideration" is justified.

5.2 Applicable Regulatory Requirements / Criteria

The regulatory requirements and guidance documents associated with this amendment application include the following:

- Section 50.36, "Technical specifications," of Title 10 of the *Code of Federal Regulations* (10 CFR) requires that a licensee's Technical Specifications (TSs) establish LCOs, including Completion Times for restoring inoperable equipment, that set the lowest functional capability or performance levels for equipment required for safe operation of the facility. 10 CFR 50.36 also requires that a licensee's TSs be derived from the analyses and evaluations included in the safety analysis report.

- General Design Criterion (GDC) 17, "Electric power systems," in Appendix A to 10 CFR Part 50, requires, in part, that nuclear power plants have an onsite electric power system and an offsite electric power system to permit the functioning of structures, systems, and components (SSCs) important to safety. The onsite power system is required to have sufficient independence, redundancy, and testability to perform its safety function, assuming a single failure. The offsite power system is required to be supplied by two physically independent circuits that are designed and located so as to minimize, to the extent practical, the likelihood of their simultaneous failure under operating and postulated accident and environmental conditions. In addition, this criterion requires provisions to minimize the probability of losing electric power from the remaining electric power supplies as a result of loss of power from the unit, the offsite transmission network, or the onsite power supplies.
- GDC 18, "Inspection and testing of electric power systems," requires that electric power systems that are important to safety shall be designed to permit appropriate periodic inspection and testing of important areas and features.
- The requirements of GDC 44, "Cooling Water," GDC 45, "Inspection of Cooling Water System," and GDC 46, "Testing of Cooling Water System," from Appendix A of 10 CFR Part 50 must be met.
- 10 CFR 50.65, "Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants," requires that performance and condition monitoring activities and preventive maintenance activities must be balanced against the objective of minimizing the unavailability of the structures, systems, and components within the scope of the rule.
- 10 CFR 50.63, "Loss of All Alternating Current Power," requires a nuclear power plant to be able to withstand for a specified duration and recover from a complete loss of offsite and onsite alternating current (AC) sources.
- Regulatory Guide (RG) 1.93, "Availability of Electric Power Sources," provides guidance with respect to operating restrictions if the number of available AC sources is less than that required by the TS LCO. In particular, this Regulatory Guide discusses a maximum Completion Time of 72 hours for an inoperable onsite or offsite AC source.
- Regulatory Guide 1.27, "Ultimate Heat Sink for Nuclear Power Plants," provides guidance for the source of service or "house" water supply necessary to safely operate, shut down, and cool down a nuclear plant.
- NUREG-0800, Standard Review Plan (SRP) 9.2.1, "Station Service Water System," provides the NRC staff with guidance to review the system.

- Regulatory Guide 1.174, "An Approach for Using Probabilistic Risk Assessment in Risk-Informed Decisions on Plant-Specific Changes to the Licensing Basis," describes a risk-informed approach, acceptable to the NRC, for assessing the nature and impact of proposed permanent licensing-basis changes by considering engineering issues and applying risk insights. This regulatory guide also provides risk-acceptance guidelines for evaluating the results of such evaluations. While not directly applicable to temporary changes, the NRC staff has used Regulatory Guide 1.174 for guidance in evaluating the temporary changes.
- Regulatory Guide 1.177, "An Approach for Plant-Specific, Risk-Informed Decisionmaking: Technical Specifications," describes an acceptable risk-informed approach specifically for assessing proposed permanent TS changes in allowed outage times. This regulatory guide also provides risk acceptance guidelines for evaluating the results of such assessments. While not directly applicable to temporary changes, the NRC staff has used Regulatory Guide 1.177 for guidance in evaluating the licensee's proposed changes.

Regulatory Guide 1.177 identifies a three-tiered approach for the licensee's evaluation of the risk associated with a proposed Completion Time (CT) TS change, as discussed below.

Tier 1 assesses the risk impact of the proposed change in accordance with acceptance guidelines consistent with the Commission's Safety Goal Policy Statement, as documented in Regulatory Guide 1.174 and Regulatory Guide 1.177. The first tier assesses the impact on operational plant risk based on the change in core damage frequency (Δ CDF) and change in large early release frequency (Δ LERF). It also evaluates plant risk while equipment covered by the proposed CT is out-of-service, as represented by incremental conditional core damage probability (ICCDP) and incremental conditional large early release probability (ICLERP). Tier 1 also addresses probabilistic risk assessment (PRA) quality, including the technical adequacy of the licensee's plant-specific PRA for the subject application. Cumulative risk of the proposed TS change in light of past related applications or additional applications under review is also considered along with uncertainty/sensitivity analysis with respect to the assumptions related to the proposed TS change.

Tier 2 identifies and evaluates any potential risk-significant plant equipment outage configurations that could result if equipment, in addition to that associated with the proposed license amendment, is taken out-of-service simultaneously, or if other risk-significant operational factors, such as concurrent system or equipment testing, are also involved. The purpose of this evaluation is to ensure that there are appropriate restrictions in place such that risk-significant plant equipment outage configurations will not occur when equipment associated with the proposed CT is out-of-service.

Tier 3 addresses the licensee's overall configuration risk management program (CRMP) to ensure that adequate programs and procedures are in place for identifying risk-significant plant configurations resulting from maintenance or other operational activities and appropriate compensatory measures are taken to avoid risk-significant configurations that may not have been considered when the Tier 2 evaluation was performed. Compared with Tier 2, Tier 3 provides additional coverage to ensure risk significant plant equipment outage configurations are identified in a timely manner and that the risk impact of out-of-service equipment is appropriately evaluated prior to performing any maintenance activity over extended periods of plant operation. Tier 3 guidance can be satisfied by the Maintenance Rule (10 CFR 50.65(a)(4)), which requires a licensee to assess and manage the increase in risk that may result from activities such as surveillance testing and corrective and preventive maintenance, subject to the guidance provided in Regulatory Guide 1.177, Section 2.3.7.1, and the adequacy of the licensee's program and PRA model for this application. The CRMP assures that equipment removed from service prior to or during the proposed extended CT will be appropriately assessed from a risk perspective.

- SRP Chapter 19

General guidance for evaluating the technical basis for proposed risk-informed changes is provided in Section 19.2, "Review of Risk Information Used to Support Permanent Plant-Specific Changes to the Licensing Basis: General Guidance," of the NRC Standard Review Plan (SRP), NUREG-0800. Guidance on evaluating PRA technical adequacy is provided in Section 19.1, "Determining the Technical Adequacy of Probabilistic Risk Assessment Results for Risk Informed Activities." More specific guidance related to risk-informed TS changes is provided in SRP Section 16.1, "Risk-Informed Decision Making: Technical Specifications," which includes CT changes as part of risk-informed decision making.

Section 19.2 of the SRP states that a risk-informed application should be evaluated to ensure that the proposed changes meet the following key principles:

1. The proposed change meets the current regulations, unless it explicitly relates to a requested exemption or rule change.
2. The proposed change is consistent with the defense-in-depth philosophy.
3. The proposed change maintains sufficient safety margins.
4. When proposed changes increase core damage frequency or risk, the increase(s) should be small and consistent with the intent of the Commission's Safety Goal Policy Statement.

5. The impact of the proposed change should be monitored using performance measurement strategies.

- Regulatory Guide 1.182, "Assessing and Managing Risk Before Maintenance Activities at Nuclear Power Plants," endorses the guidance (in part) of NUMARC 93-01 (Section 11), "Industry Guidelines for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants."

There are no changes being proposed in this amendment application such that commitments to the regulatory requirements and guidance documents above would come into question. The evaluations documented above confirm that Callaway Plant will continue to comply with all applicable regulatory requirements.

In conclusion, based on the considerations discussed above, (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

6.0 ENVIRONMENTAL CONSIDERATION

AmerenUE has evaluated the proposed amendment and has determined that the proposed amendment does not involve (i) a significant hazards consideration, (ii) a significant change in the types or significant increase in the amounts of any effluent that may be released offsite, or (iii) a significant increase in individual or cumulative occupational radiation exposure. Accordingly, the proposed amendment meets the eligibility criterion for categorical exclusion set forth in 10 CFR 51.22(c)(9). Therefore, pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the proposed amendment.

7.0 REFERENCES

1. Callaway License Amendment 186 dated October 31, 2008, "Callaway Plant, Unit 1 – Issuance of Amendment Re: One-Time Extension of Completion Time for Essential Service Water System Piping Replacement (TAC No. MD7252)," as corrected per NRC letter dated November 6, 2008.
2. AmerenUE letters ULNRC-05445 dated October 31, 2007, ULNRC-05476 dated February 21, 2008, ULNRC-05482 dated March 7, 2008, ULNRC-05500 dated May 6, 2008, ULNRC-05520 dated July 10, 2008, and ULNRC-05534 dated August 13, 2008.

3. NRC Regulatory Guide 1.174, Revision 1, "An Approach for Using Probabilistic Risk Assessment in Risk-Informed Decisions on Plant-Specific Changes to the Licensing Basis," November 2002.
4. NRC Regulatory Guide 1.177, "An Approach for Plant-Specific, Risk-Informed Decisionmaking: Technical Specifications," August 1998."

ATTACHMENT 2

MARKUP OF TECHNICAL SPECIFICATIONS

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. One ESW train inoperable. (continued)</p>	<p>A.1 (continued)</p> <p>Restore ESW train to OPERABLE status.</p> <p><i>INSERT 1</i> →</p>	<p>-----NOTE-----</p> <p>A one-time Completion Time of 14 days per ESW train is allowed to support planned replacement of ESW piping prior to December 31, 2008.</p> <p>72 hours</p>
<p>B. Required Action and associated Completion Time of Condition A not met.</p>	<p>B.1 Be in MODE 3.</p> <p><u>AND</u></p> <p>B.2 Be in MODE 5.</p>	<p>6 hours</p> <p>36 hours</p>

INSERT 1

A one-time Completion Time of 14 days is allowed to support planned replacement of ESW 'B' train piping prior to April 30, 2009.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>B. One DG inoperable. (continued)</p>	<p>B.4 Restore DG to OPERABLE status.</p> <p style="text-align: center;"><i>INSERT 1</i> →</p>	<p>-----NOTE----- A one-time Completion Time of 14 days per DG is allowed to support planned replacement of ESW piping prior to December 31, 2008.</p> <p>72 hours</p> <p><u>AND</u></p> <p>6 days from discovery of failure to meet LCO</p>
<p>C. Two offsite circuits inoperable.</p>	<p>C.1 ----- NOTE ----- In Modes 1, 2, and 3, the turbine driven auxiliary feedwater pump is considered a required redundant feature.</p> <p>-----</p> <p>Declare required feature(s) inoperable when its redundant required feature(s) is inoperable.</p> <p><u>AND</u></p>	<p>12 hours from discovery of Condition C concurrent with inoperability of redundant required features</p> <p style="text-align: right;">(continued)</p>

INSERT 1

A one-time Completion Time of 14 days is allowed to support planned replacement of ESW 'B' train piping prior to April 30, 2009.

ATTACHMENT 3

RETYPE TECHNICAL SPECIFICATIONS

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One ESW train inoperable.	A.1 (continued) Restore ESW train to OPERABLE status.	-----NOTE----- A one-time Completion Time of 14 days is allowed to support planned replacement of ESW 'B' train piping prior to April 30, 2009. ----- 72 hours
B. Required Action and associated Completion Time of Condition A not met.	B.1 Be in MODE 3. <u>AND</u> B.2 Be in MODE 5.	6 hours 36 hours

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. One DG inoperable. (continued)	B.4 Restore DG to OPERABLE status.	<p>-----NOTE----- A one-time Completion Time of 14 days is allowed to support planned replacement of ESW 'B' train piping prior to April 30, 2009.</p> <p>-----</p> <p>72 hours</p> <p><u>AND</u></p> <p>6 days from discovery of failure to meet LCO</p>
C. Two offsite circuits inoperable.	<p>C.1 ----- NOTE ----- In Modes 1, 2, and 3, the turbine driven auxiliary feedwater pump is considered a required redundant feature.</p> <p>-----</p> <p>Declare required feature(s) inoperable when its redundant required feature(s) is inoperable.</p> <p><u>AND</u></p>	<p>12 hours from discovery of Condition C concurrent with inoperability of redundant required features</p> <p>(continued)</p>

ATTACHMENT 4

PROPOSED TECHNICAL SPECIFICATION BASES CHANGES
(for information only)

BASES

APPLICABILITY (continued) In MODES 5 and 6, requirements for the ESW system are determined by the systems it supports.

ACTIONS

A.1

If one ESW train is inoperable, action must be taken to restore OPERABLE status within 72 hours. In this Condition, the remaining OPERABLE ESW system train is adequate to perform the heat removal function. However, the overall reliability is reduced because a single failure in the OPERABLE ESW system train could result in loss of ESW function.

Required Action A.1 is modified by two Notes. The first Note indicates that the applicable Conditions and Required Actions of LCO 3.8.1, "AC Sources - Operating," shall be entered if an inoperable ESW train results in an inoperable emergency diesel generator. The second Note indicates that the applicable Conditions and Required Actions of LCO 3.4.6, "RCS Loops - MODE 4," shall be entered if an inoperable ESW system train results in an inoperable residual heat removal train. This is an exception to LCO 3.0.6 and ensures the proper actions are taken for these components.

The 72 hour Completion Time is reasonable based on the redundant capabilities afforded by the OPERABLE train, and the low probability of a DBA occurring during this time period. ~~The Completion Time is modified by a Note that allows a one-time Completion Time of 14 days per ESW train to support the planned replacement of ESW piping prior to December 31, 2008.~~ **INSERT B1**

B.1 and B.2

If the ESW System train cannot be restored to OPERABLE status within the associated Completion Time, the unit must be placed in a MODE in which the LCO does not apply. To achieve this status, the unit must be placed in at least MODE 3 within 6 hours and in MODE 5 within 36 hours.

The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems.

(continued)

INSERT B1

The Completion Time is modified by a Note that allows a one-time Completion Time of 14 days to support the planned replacement of ESW 'B' train piping prior to April 30, 2009.

BASES

ACTIONS

B.3.1 and B.3.2 (continued)

preplanned preventive maintenance, testing, or maintenance to correct a condition which, if left uncorrected, would not affect the OPERABILITY of the DG, or for an inoperable Support System, or for an independently testable component, SR 3.8.1.2 does not have to be performed. If the cause of inoperability exists on the other DG, the other DG would be declared inoperable upon discovery and Condition E of LCO 3.8.1 would be entered. Once the failure is repaired, the common cause failure no longer exists, and Required Action B.3.1 is satisfied. If the cause of the initial inoperable DG cannot be confirmed not to exist on the remaining DG, performance of SR 3.8.1.2 suffices to provide assurance of continued OPERABILITY of that DG. Required Action B.3.2 is modified by a Note stating that it is satisfied by the automatic start and sequence loading of the DG.

In the event the inoperable DG is restored to OPERABLE status prior to completing either B.3.1 or B.3.2, the plant corrective action program will continue to evaluate the common cause possibility. This continued evaluation, however, is no longer under the 24 hour constraint imposed while in Condition B.

According to Generic Letter 84-15 (Ref. 7), 24 hours is reasonable to confirm that the OPERABLE DG(s) is not affected by the same problem as the inoperable DG.

B.4

INSERT
B2 →

~~Both Completion Times of Required Action B.4 are modified by a Note that allows a one-time Completion Time of 14 days per DG to support the planned replacement of ESW piping prior to December 31, 2008.~~

According to Regulatory Guide 1.93 (Ref. 6), operation may continue in Condition B for a period that should not exceed 72 hours.

In Condition B, the remaining OPERABLE DG and offsite circuits are adequate to supply electrical power to the onsite Class 1E Distribution System. The 72 hour Completion Time takes into account the capacity and capability of the remaining AC sources, a reasonable time for repairs, and the low probability of a DBA occurring during this period.

The second Completion Time for Required Action B.4 establishes a limit on the maximum time allowed for any combination of required AC power sources to be inoperable during any single contiguous occurrence of

(continued)

INSERT B2

Both Completion Times of Required Action B.4 are modified by a Note that allows a one-time Completion Time of 14 days to support the planned replacement of ESW 'B' train piping prior to April 30, 2009.

ATTACHMENT 5

SUMMARY OF REGULATORY COMMITMENTS

SUMMARY OF REGULATORY COMMITMENTS

The following table identifies those actions committed to by AmerenUE in this document. Any other statements in this submittal are provided for information purposes and are not considered to be commitments. Please direct questions regarding these commitments to Mr. Scott Maglio, Assistant Manager – Regulatory Affairs, (573) 676-8719.

COMMITMENT	Due Date/Event
1. The proposed changes to the Callaway Technical Specifications will be implemented prior to April 16, 2009.	Prior to April 16, 2009.
2. For no more than 48 hours during the ‘A’ ESW train LCO outage, and no more than 120 hours during the ‘B’ ESW train LCO outage, normal service water will not be available to the out-of-service ESW train. During these time limits, no PRA-modeled equipment, other than the out-of-service ESW train and supported systems rendered inoperable by that ESW train being out-of-service, will be voluntarily taken out-of-service during the one-time extended Completion Time taken on each train. This applies only to PRA-modeled equipment in the protected ESF train (ESF train not served by the inoperable ESW train) during these time limits that normal service water is unavailable. No work will be allowed on the protected (operable) ESW train. The preceding was credited in the risk metric calculations supporting this license amendment request. No hot work will be allowed in the area of equipment in the protected ESF train (within 20 feet unless there is an intervening barrier) except for yard piping work and work in control building room 3101 where the underground piping enters the control building. Non-intrusive TS surveillances and preventive maintenance equipment status verifications that do not affect equipment operability / functionality will be allowed.	Administrative controls in place at time amendment is implemented. This is a Tier 2 commitment. See footnote 1.

<p>3. For the rest of the ‘A’ ESW train and ‘B’ ESW train LCO outages (the one-time 14-day Completion Times per ESW train minus the time limits noted above), the out-of-service ESW train loads will be cooled by normal service water. Credit has been taken in the risk metric calculations for the ESF equipment serviced by the protected ESW train for the entire 14-day LCO outage on the opposite train (and for normal service water supplying the protected train loads if the protected ESW pump were to fail) and for the ESF equipment that can be serviced by normal service water associated with the out-of-service ESW train for the times note above. None of the PRA-modeled equipment in either train will be voluntarily taken out of service during the time that normal service water is available to supply the out-of-service ESW train loads. Non-intrusive TS surveillances and preventive maintenance equipment status verifications that do not affect equipment operability / functionality will be allowed. This commitment applies as long as the one-time 14-day Completion Time extension of TS 3.7.8 Condition A and TS 3.8.1 Condition B is in use; this commitment expires when these TS Conditions are exited.</p>	
<p>4. Access to the switchyard will be limited to personnel with a demonstrable need (operator and security guard rounds involving no equipment manipulation and staff associated with performing the 8-hour readiness checks on the temporary DGs) and no pre-planned work or testing or preventive maintenance will be allowed in the switchyard, or other areas of the plant, that could cause a loss of offsite power (LOOP) event during the one-time 14-day extended Completion Time. Credit was taken for this commitment in the risk metric calculations supporting this license amendment request. The only other access to the switchyard that would be considered would be for corrective maintenance that would address an emergent condition before it led to a LOOP event.</p>	<p>Administrative controls in place at time amendment is implemented. This is a Tier 2 commitment. See footnote 2.</p>
<p>5. The one-time 14-day extended Completion Time will not be entered if, prior to entry, inclement weather conditions are forecasted, i.e., work under the extended Completion Time will not be started if Severe Weather as defined in OTO-ZZ-00012 is forecasted to occur within 140 miles of the plant. National Weather Service reports will be monitored prior to and throughout each ESW train LCO outage.</p>	<p>Administrative controls in place at time amendment is implemented. This is a Tier 2 commitment. See footnote 3.</p>

<p>6. From EDP-ZZ-01129 Appendix 2 for a DG or ESW outage and TS 3.7.5, the following Tier 2 commitments are also added to the scope of this amendment request:</p> <ul style="list-style-type: none"> • The turbine-driven auxiliary feedwater pump (TDAFP) will remain Operable. If the TDAFP were to become inoperable during the 14-day LCO outage, TS 3.7.5 Condition D would require a plant shutdown to MODE 3 within 6 hours and to MODE 4 within 12 hours since one MDAFW train is already inoperable at the beginning of the LCO outage. • The TDAFP pump room and associated valve rooms will be posted as restricted access. • The protected train motor-driven auxiliary feedwater pump (MDAFP) pump room and associated valve rooms will be posted as restricted access. • The condensate storage tank (CST) will be posted as restricted access. • No work will be allowed on the Security Diesel. 	<p>Administrative controls in place at time amendment is implemented. This is a Tier 2 commitment. See footnote 4.</p>
<p>7. For the time limits (14 days minus 48 hours on ESW train 'A' and 14 days minus 120 hours on ESW train 'B') noted above in commitment 3, the piping tie-in (new underground PE ESW piping to the rest of the system) will be performed with the normal service water system cooling the out-of-service ESW train heat loads. During the portion of the extended Completion Time that normal service water is supplying the ESW loads, the normal service water to ESW supply and return cross-connect valves will be opened and power removed from the operators. Credit was taken for the preceding in the risk metric calculations supporting this license amendment request. The ESW return to UHS valves will be closed and power removed from the operators during this portion of the extended 14-day Completion Time as well.</p>	<p>Administrative controls in place at time amendment is implemented. This is a Tier 2 commitment. See footnote 5.</p>

<p>8. Prior to entering the extended 14-day ESW Completion Times, the Operations department will verify the availability of fire protection equipment per Callaway procedure APA-ZZ-00703 (operability requirements spelled out in FSAR Section 9.5.1.7 and Table 9.5.1-2 will apply throughout the 14-day LCO outage subject to the Applicable Modes column of Table 9.5.1-2) and flood mitigation (drains, watertight doors) equipment to assure that important plant design features, for mitigation of fires or floods that could impact the protected train, are available. In addition, prior to entering the extended ESW CTs, a walkdown of the above ground portion of the protected ESW train will be performed for transient combustibles, except for the portion of the protected train inside containment or otherwise excluded by the Radiation Protection department. Removal of any transient combustibles, pursuant to this walkdown, was credited in the fire risk quantification performed to support this license amendment request. This walkdown will also address the seismic interaction commitments made in response to RAI 3.(a) in ULNRC-05500. The 14-day LCO outage on each ESW train will not proceed until all transient combustibles that could affect the protected ESW train and the ESF equipment it serves are removed, watertight doors protecting ESF equipment associated with the protected ESW train are verified to be closed and functional, drains in rooms serving ESF equipment associated with the protected ESW train are verified to be unobstructed, and fire detection and suppression equipment in fire areas associated with the protected ESW train are verified to be available.</p>	<p>Administrative controls in place at time amendment is implemented. This is a Tier 2 commitment. See footnote 6.</p>
<p>9. Continuous, one-hour, and eight-hour fire and flood watches will be instituted on the protected ESW train as discussed in the response to RAI s 3.b and 3.c in ULNRC-05500 and footnote 6 below. The NCP will remain functional and its room will be posted as restricted access. The preceding commitments were credited in the fire and flooding risk metric quantifications performed to support this license amendment request. If the NCP were to become non-functional during the 14-day LCO outage such that the pump becomes unable to provide the required RCP seal cooling, administrative controls will require a plant shutdown to MODE 3 within 6 hours and to MODE 4 within 12 hours.</p>	<p>Administrative controls in place at time amendment is implemented. This is a Tier 2 commitment. See footnote 6.</p>

<p>10. Appropriate training will be provided to operations personnel on this TS change and the associated ESW modification, as well as the compensatory measures to be implemented during the one-time extended Completion Time. This training will identify the dominant internal events, fire and internal flooding core damage scenarios, associated with the plant configuration during the extended ESW Completion Time, and include a discussion of mitigation strategies for these scenarios.</p>	<p>Administrative controls in place at time amendment is implemented. This is a Tier 2 commitment. See footnote 7.</p>
<p>11. A temporary alternate power source consisting of diesel generators, with combined capacity equal to or greater than the capacity of either one of the installed emergency DGs, will be available as a backup power source. This temporary alternate AC source could power protected train loads in the unlikely event a loss of offsite power event occurred and the protected train's DG failed to start and run. Prior to entering the extended 14-day CT on each ESW train, these temporary diesel generators will be load tested to provide a load equal to the continuous rating of the inoperable DG. After entering the extended ESW CT on each train, this source will be verified available every 8 hours and treated as protected equipment. This temporary alternate power source is credited in the internal events risk metric calculations performed to support this license amendment request.</p>	<p>Equipment and administrative controls in place at time amendment is implemented. This is a Tier 2 commitment. See footnote 8.</p>

1. This commitment was originally discussed in ULNRC-05445 Attachment 1 (pages 13-14), then revised in the responses to RAI #4 and RAI #6.a in ULNRC-05476.
2. This commitment was originally discussed in ULNRC-05445 Attachment 1 (pages 13-14). LOOP frequency adjustments were discussed in the response to RAI #6.b in ULNRC-05476. Temporary DGs as an alternate AC power source are discussed in the response to RAI #2.b in Enclosure 1 of ULNRC-05482.
3. This commitment was originally discussed in ULNRC-05445 Attachment 1 (pages 13-14). Severe Weather was defined in the response to RAI #6.d in ULNRC-05476.
4. This commitment was originally discussed in the response to RAI #4 in ULNRC-05476.
5. This commitment was originally discussed in ULNRC-05445 Attachment 1 (pages 6, 7, 13-14), then revised in the response to RAI #7.a in ULNRC-05476. When the 'A' ESW train is out-of-service (OOS), valves EFHV0023, EFHV0025, EFHV0039, and EFHV0041 will be opened and power removed from the valve operators. EFHV0037 (return to UHS) will be closed and power removed from the valve operator. When the 'B' ESW train is OOS, valves EFHV0024, EFHV0026, EFHV0040, and EFHV0042 will be opened and power removed from the valve operators. EFHV0038 (return to UHS) will be closed and power removed from the valve operator.

6. This commitment was originally discussed in the response to RAI #4 in ULNRC-05476. Additional clarification was provided in that RAI response with respect to fire and flood watches and walkdowns for transient combustibles to be performed prior to using the extended CT. This commitment was later revised by the responses to RAIs 3.(a), 3.(b), and 3.(c) in Enclosure 1 of ULNRC-5500. The pre-use walkdown will also assure there are no obvious mounting or seismic interaction issues (e.g., loose parts, missing hardware, etc.) for the following equipment: ultimate heat sink (UHS) cooling tower fans and motor control centers, ESW self-cleaning strainers, diesel generator (D/G) intake air filters, and D/G intercooler heat exchangers.

Control building room 3101 was moved from the 1-hour fire and flood watch list to the 8-hour fire and flood watch commitment for the rest of the protected ESW train.

Continuous fire watches will be posted in auxiliary building rooms 1409 and 1410, and in control building rooms 3301, 3302, 3403 through 3405, 3407 through 3411, 3413, and 3414 when equipment in these locations is in the protected ESW train.

The following rooms and buildings will be subject to the 1-hour fire and flood watches when equipment in these locations is in the protected ESW train:

- Auxiliary building rooms 1101 through 1117, 1120 through 1125, 1128-1130, 1201, 1202, 1205, 1322, 1323, 1331, 1401, 1402, 1406, 1407, and 1408
- Diesel generator building rooms 5201 and 5203
- ESW pumphouse rooms U104 and U105
- UHS cooling tower rooms U301, U302, U304, U305, U306, and U307

All other portions of the protected ESW train will be subject to 8-hour fire and flood watches.

7. This commitment was originally discussed in ULNRC-05445 Attachment 1 (page 13).

8. Temporary DGs as an alternate AC power source are discussed in the response to RAI #2.b in Enclosure 1 of ULNRC-05482.