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Callaway Plant

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February 21, 2008

U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
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ULNRC-05476

Ladies and Gentlemen:

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

Reference: ULNRC-05445 dated October 31, 2007

In the reference cited above AmerenUE requested a license amendment that would revise 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 Completion Time extension from 72 hours to 14 days per ESW train to be used prior to December 31, 2008, for replacing underground ESW piping.

Enclosure 1 of this letter contains the responses to eight questions that were received electronically on January 16, 2008. Enclosure 2 provides a list of commitments for this amendment which supersedes the commitments contained in the referenced amendment application and summarized in its Attachment 6.

If you have any questions on this letter or its enclosures, please contact Mr. Scott Maglio at (573) 676-8719.

Sincerely,

Luke H. Graessle
Manager - Regulatory Affairs

A001
NRR

GGY/nls

Enclosures: 1 – Responses to PRA Branch Questions
2 – Revised Commitment List

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REQUEST FOR ADDITIONAL INFORMATION RELATED TO AN AMENDMENT TO REVISE TECHNICAL SPECIFICATIONS FOR ESSENTIAL SERVICE WATER
CALLAWAY PLANT
DOCKET NO. 50-483
TAC NO. MD7252

The questions given below are based on the NRC staff's review of the license amendment request (LAR) submitted on October 31, 2007 (ULNRC-05445) by the Union Electric Company (the licensee) for the Callaway Plant. This LAR proposes changes to the Callaway Technical Specifications (TSs).

A revision to the commitments contained in Attachment 6 to ULNRC-05445 is also attached.

1. Question: The licensee identified that five open significant (level A or B facts and observations (F&Os)) from its industry peer review are not yet resolved and incorporated into the Callaway probabilistic risk assessment (PRA) model used to support this application, and similarly that none of the gap items identified by the Scientech peer review are yet resolved. The licensee stated that none of the open F&Os would have a direct impact on the PRA insights developed for this application, and further that it did not believe that the gap analysis findings invalidate the PRA insights developed to support this license amendment request. The licensee is requested to provide additional details and justify its technical basis that these open, unresolved issues have an insignificant impact on the risk analyses supporting this amendment request.

Response: Open "A" and "B" industry (i.e., WOG) peer review F&Os are briefly summarized below.

WOG F&O IE-7	Related to interfacing systems LOCA (ISLOCA) analysis.
WOG F&O ST-1	Related to interfacing systems LOCA (ISLOCA) analysis.
WOG F&O TH-3	Recommendation related to development of success criteria guidance.
WOG F&O L2-1	Identifies three accident types not included in LERF; long-term SGTR sequences, failure of containment isolation (due to low frequency when combined with core damage sequence cutsets) and internal flooding sequences.
WOG F&O L2-3	Related to the use of LERF split fractions for each plant damage state.

F&Os IE-7 and ST-1 are related to the Callaway ISLOCA analysis. Since no mitigation is credited in the ISLOCA analysis, these F&Os would have no impact on the risk values reported in the submittal. F&O TH-3 is essentially a documentation enhancement issue, and therefore does not bear on the risk values reported in the submittal. F&Os L2-1 and L2-3 would not significantly alter the risk insights developed for this application, since core damage frequency is the limiting risk metric for this application.

Due to the number of observations developed in the gap analysis against the supporting requirements of the ASME PRA Standard, a summary of these observations has not been provided in this RAI response. However, as stated in the submittal, AmerenUE does not believe that the gap analysis findings invalidate the PRA insights developed to support this license amendment request. The basis for this conclusion is that the risk metrics for this one-time per ESW train Completion Time extension already exceed the acceptance thresholds provided in the regulatory guidance for permanent Technical Specification changes, and AmerenUE does not believe that incorporation of the gap analysis findings into the Callaway PRA would result in a significant increase in this exceedance.

2. Question: The licensee is requested to confirm that there are no (1) current outstanding plant changes (i.e., modifications or changes to operating procedures) or (2) planned changes which would be implemented prior to the expiration date of the temporary change, which would impact the PRA model. If such changes exist, the licensee is requested to identify such changes and provide its technical basis that the change(s) have an insignificant impact on the risk analyses supporting this amendment request.

Response: As discussed on page 11 of Attachment 1 of the submittal, Callaway employs an administrative procedure to monitor for plant changes that could affect the PRA model. In addition, PRA personnel participate in the review of all EOP revisions (per APA-ZZ-00103 Attachment 7) and in the meetings of the Callaway Emergency Operating Procedure (EOP) Steering Committee when PRA input is needed. There are no plant changes, either implemented or planned for implementation prior to December 31, 2008, that would significantly impact the Callaway PRA model, or risk results reported in the submittal.

3. Question: The licensee is requested to identify and justify truncation levels used to generate the risk results in support of this application in accordance with NRC Regulatory Guide (RG) 1.177, Section 2.3.3.4.

Response: The Callaway PRA is a "small event tree, large fault tree" model. Quantification of this type of PRA model involves quantification of linked fault trees, which represent the event tree headings, and then quantification of the event tree (i.e., accident) sequences to generate the overall core damage (or large early release) results. To generate the risk results reported in the license amendment request, pre-solved cutsets, generated in the Fourth Callaway PRA Update quantification, were used.

To meet the core damage frequency (CDF) truncation level requirements of the Mitigating System Performance Index (MSPI) in NEI 99-02, Revision 4, Appendix F, the fault and event tree quantifications of the Fourth PRA Update were each performed using a cutset truncation value (4E-12) that was seven orders of magnitude less than the baseline core damage frequency (4.22E-5).

In addition to meeting the MSPI CDF truncation level requirement, the truncation values used in quantification of the current Callaway PRA (i.e., Fourth PRA Update) also meet Capability Category II of Supporting Requirement (SR) QU-B3 of ASME RA-Sb-2005 Addenda to ASME RA-S-2002, "Standard for Probabilistic Risk Assessment for Nuclear Power Plant Applications the ASME PRA Standard." This SR indicates that model solution convergence / truncation can be considered sufficient when successive reductions in truncation value of one decade result in decreasing changes in CDF or LERF, and the final change is less than 5%.

A CDF truncation value sensitivity evaluation was performed as part of the Fourth PRA Update quantification, and showed that if the truncation value was decreased from 1E-10 to 1E-11, CDF increased by 1.4%, and if the truncation value was decreased from 1E-11 to 4E-12, the CDF value increased by 0.2%

For quantification of LERF, a truncation value of 1E-11 was used. A truncation level sensitivity evaluation for LERF showed that, if the truncation level was decreased from 1E-10 to 1E-11, LERF increased by 2%, and if the truncation level was decreased from 1E-11 to 1E-12, LERF increased by 0.8%.

Based on the above discussion, the truncation values used are sufficiently low such that valid results are generated for this PRA application.

4. Question: The licensee identifies that internal flooding, internal fires, seismic events, and other external events are not in the scope of its PRA models and risk analyses. No disposition of these risk sources has been provided to address the potential risk exposure when one essential service water (ESW) header is unavailable under the proposed TS change. The licensee is requested to provide an appropriate technical basis, supported by qualitative and/or quantitative risk insights, to support a conclusion that the risk impact from these unmodeled events is insignificant, or to provide appropriate effective compensatory measures to mitigate that risk during the ESW train outage.

Response: As discussed in the submittal, external events risk and internal flooding risk cannot be readily calculated using the current Callaway PRA model. Consequently, in order to address fire and internal flooding risk during the extended ESW train outages, AmerenUE will institute, as compensatory measures, fire and flood watches on the protected (Operable) ESW train. Prior to entering the extended ESW Completion Times (CTs), the Operations department will review the operational status of fire protection and flood mitigation 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 protected ESW train will be performed, except for the portion of the protected train inside containment or otherwise excluded by the Radiation Protection department, for transient combustibles. During the 14-day CT the fire watches manned by security guards will inform their supervision of any

transient combustibles that may be improperly stored within 20 feet of the protected ESW train. Instructions will be given to the guards as to what constitutes transient combustibles. The fire protection engineer will evaluate any instances observed of additional transient combustibles per EDP-ZZ-04044. One-hour fire and flood watches will be posted for the protected train CCW pump and heat exchanger rooms (auxiliary building room 1401 when the 'B' train is protected and room 1406 when the 'A' train is protected), control building room 3101 (where the underground ESW piping enters the control building), the protected train ESF switchgear rooms (control building room 3301 when the 'A' train is protected and room 3302 when the 'B' train is protected), and the diesel generator rooms (room 5201 when the 'B' train is protected and room 5203 when the 'A' train is protected). All other portions of the protected ESW train, except for the portion of the protected train inside containment or otherwise excluded by the Radiation Protection department, will be subject to fire and flood watches on an 8-hour rotation. The rooms subject to the one-hour watches were found to be risk important during the performance of Callaway's internal flooding, seismic margins, and FIVE fire protection evaluations. No work will be allowed in the area of (within 20 feet) equipment in the protected ESF train except for yard piping work and work in control building room 3101 where the underground piping enters the control building – in these areas close proximity work between trains cannot be avoided.

From EDP-ZZ-01129 Appendix 2 (risk management actions for a DG or ESW outage), the following Tier 2 commitments are also added to the scope of this amendment request:

- The turbine-driven auxiliary feedwater pump (TDAFP) will remain Operable.
- 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.

5. Question: The licensee is requested to address sources of uncertainty in the PRA calculations in support of this application, specifically the following:

a. Whether the reported values of the risk metrics are point estimates of the mean or mean values calculated by propagating uncertainties in the data;

b. Important assumptions in the PRA models relevant to this application, such as ESW success criteria, loss of offsite power frequency and recovery, reactor coolant pump seal LOCA modeling, credit for equipment repair and recovery, and other important assumptions based on the licensee's review of the risk results and insights.

c. How potential parametric and/or model uncertainties have been accounted for in the calculation, and how they impact the conclusions.

Response:

Responses to items a through c are provided below.

a. The values of the risk metrics reported in the submittal are point estimates of the mean.

b. As with any PRA, some assumptions or modeling decisions were necessary to develop the Callaway PRA model. However, none of these assumptions would serve to invalidate the risk metric values reported in the submittal. Specific potential sources of uncertainty, mentioned in this RAI, are discussed below.

ESW success criteria – Unlike certain success criteria for frontline systems (e.g., the number of ECCS pumps and pressurizer PORVs for successful feed and bleed decay heat removal), the PRA success criterion for the ESW system is straightforward. In essence, to cool its head loads, the single ESW pump in a train must start and run for 24 hours. Thus, the ESW success criterion does not represent a source of uncertainty.

Loss of offsite power (LOOP) frequency and recovery – The baseline LOOP frequency used in the Callaway PRA was determined by reviewing EPRI LOOP data for U.S. nuclear plants, omitting those LOOP events that could not occur at Callaway (e.g., a LOOP event caused by salt spray at a coastal plant), and using the remaining set of LOOP events, deemed applicable to Callaway, to determine a generic LOOP frequency. This generic frequency was then Bayesian updated with Callaway experience to determine the LOOP frequency that is used in the baseline Callaway PRA model. To determine offsite power recovery probabilities, the set of domestic industry LOOP events determined to be applicable to Callaway, along with their respective durations, were analyzed.

Reactor Coolant Pump (RCP) seal LOCA modeling – The current Callaway PRA utilizes an RCP seal LOCA model based upon WCAP-10541, Rev. 2.

Credit for equipment repair and recovery – A limited amount of failed equipment recovery is credited in the baseline Callaway PRA; however, none of the recovery credited in the model would invalidate the risk metric values reported in the submittal.

c. Neither parametric nor model uncertainties have been accounted for in the calculation of the risk metric values reported in the submittal. AmerenUE does not believe that, if an effort were made to quantitatively account for such uncertainties, the conclusion that this change is acceptable would be invalidated.

6. Question: In the tier 2 evaluation of the proposed TS change, the licensee states that credit is taken in the PRA calculations for certain tier 2 restrictions, specifically the following:

- No PRA-modeled equipment other than the affected ESW train will be voluntarily removed from service;
- No.work will be performed in the Callaway switchyard; and
- The extended CT will not be entered if inclement weather is forecast.

The licensee is requested to more specifically identify how the PRA model and/or results were modified to quantitatively account for these commitments. The licensee should specifically address the following:

a. How unplanned unavailability of PRA-modeled equipment is accounted for in the risk calculations;

b. How the frequency of a loss of offsite power event has been adjusted;

c. How the probability of recovery of offsite power after loss has been adjusted;

d. How "inclement weather" is defined and what initiating event frequencies or other PRA model probabilities have been adjusted.

Response:

Responses to items a through d are provided below.

a. The Callaway PRA includes train-level test/maintenance unavailability events, each of which includes both planned and unplanned unavailability. When calculating the core damage and large early release frequencies for this application, with one train of ESW out of service, the probabilities of these test/maintenance events were zeroed in an effort to quantitatively account for the Tier 2 commitment that no PRA-modeled equipment, other than the affected ESW train, would be taken out of service during the ESW train outage. Should an emergent condition occur requiring unplanned entry into an LCO outage on the protected train plant equipment, the Tier 3 configuration risk management program would be utilized to determine appropriate risk management actions. (Also, it is likely that such an emergent condition would require a plant shutdown, pursuant to the Technical Specifications.) It should also be noted that this Tier 2 commitment applies only to PRA-modeled equipment in the protected ESF train, that is, the ESF train not served by the inoperable ESW train.

b. The generic loss of offsite power (LOOP) data used to develop the mean LOOP frequency for the baseline Callaway PRA reflects a 62.8 percent contribution from switchyard-related LOOP events, and a 28.6 percent contribution from weather-related LOOP events. Based upon the compensatory measure of limiting access to and no work in the switchyard during the extended ESW Completion Time, and not entering the Completion Time if inclement weather is forecast, the 62.8 percent LOOP contribution from switchyard events, and the 28.6 percent contribution

from weather events, were each arbitrarily reduced by 50 percent. Thus, the baseline Callaway PRA LOOP frequency was reduced by 45.7 percent (i.e., 0.5(0.628+0.286)) for this application to reflect the switchyard- and weather-related compensatory measures. It should be noted that when the generic LOOP data used to develop the baseline Callaway PRA LOOP frequency was reviewed, it was determined that 12 of the 22 switchyard-related LOOP events could be attributed to human interaction; thus, the 50 percent reduction utilized is reasonable.

c. No adjustment was made to the offsite power recovery probabilities for this analysis.

d. The weather monitoring program that will be utilized by Callaway during the extended ESW Completion Time is described on page 13 of Attachment 1 of the submittal. Severe weather is defined in OTO-ZZ-00012 which is entered upon the occurrence of any of the following:

- The National Weather Service has issued a Tornado Watch for Callaway County.
- The National Weather Service has issued a Tornado Warning for Callaway County.
- The National Weather Service has issued ANY of the following warnings for Callaway County:

  High Wind Warning
  Severe Thunderstorm Warning
  Tornado Warning (includes both Tornadoes and Funnel Clouds)
  Winter Storm Warning

- Severe Weather has been reported at or near the plant, including:

  High Winds:

  Winds in excess of 40 mph (18 m/s) sustained, or 58 mph (26 m/s) gusting.

  Severe Thunderstorm:

  A thunderstorm which produces tornadoes, hail 0.75 inches or more in diameter, or winds of 58 mph or more.

  Tornado:

  A violently rotating column of air in contact with the ground and extending from the base of a thunderstorm. A condensation funnel does not need to reach to the ground for a tornado to be present; a debris cloud beneath a thunderstorm is all that is needed to confirm the presence of a tornado, even in the total absence of a condensation funnel.

Funnel Cloud:

A condensation funnel extending from the base of a towering Cumulus or Cumulonimbus cloud (Cb), associated with a rotating column of air that is not in contact with the ground (and hence different from a tornado) .

Winter Storm Warning:

Hazardous winter weather in the form of heavy snow, heavy freezing rain, or heavy sleet. Winter Storm Warnings are issued when hazardous winter weather is imminent or occurring and may be issued 12 to 24 hours before the event is expected to begin.

The LOOP frequency used in the risk analysis was adjusted as described in the response to item b, above. No other PRA model initiating event frequencies or probabilities were adjusted to account for not entering the extended ESW Completion Time if inclement weather is forecast.

7. Question: The licensee has identified that the normal service water system will be aligned for the majority of the time of the extended CT, and that the risk analyses do not credit this alternate cooling capability. The impact on CDF and LERF also been quantified in a sensitivity study, and would reduce the risk impact by about 40% for CDF and 70% for LERF. The NRC staff would expect that the majority of the risk impact for a loss of one ESW train would be due to loss of offsite power initiating events, for which the normal service water system is identified as unavailable since it is not powered from a vital bus. Therefore, this significant reduction in risk due to the normal service water system is not fully understood as follows and should be addressed.

a. Since the risk impact is above the RG 1.777 criteria, why is no credit taken for the normal service water system?

b. The licensee is requested to describe the dominant accident sequences which contribute to the increase in risk during the extended CT, and the mitigative effect of the availability of the normal service water system on these sequences and cutsets. A brief description of the normal service water system configuration, support systems, and operation would also assist the NRC staff in understanding the relative importance of this tier 2 compensatory measure.

Response:

First some background information is presented.

The normal (i.e., non safety-related) service water system is used to cool various plant heat loads, including safety-related ESW heat loads, during normal plant operation. On a safety

injection or loss of offsite power actuation signal, the normal service water system is isolated from the ESW heat loads, and the ESW system cools these loads. However, for all PRA initiating events, except Loss of Offsite Power and Loss of All Service Water (i.e., loss of both non safety-related service water and ESW), the Callaway PRA credits the ability to cool ESW heat loads with the non safety-related service water system.

The 40 and 70 percent reductions in CDF and LERF, respectively, cited in the RAI question, are actually reductions in incremental conditional core damage probability (ICCDP) and incremental conditional large early release probability (ICLERP), which take into account both the conditional CDF and LERF values, given an ESW train outage, and the plant configuration durations (i.e., the anticipated time frames, during an ESW train outage, during which the affected train could be cooled with non safety-related service water and during which the affected ESW train cannot be cooled with non safety-related service water). The conditional CDF, given that an ESW train is out of service and cannot be cooled with non safety-related service water, was determined to be 1.432E-4 yr^{-1}. The conditional CDF, given that an ESW train is out of service but can be cooled with non safety-related service water, is 8.012E-5 yr^{-1}. At the time the risk calculation was performed, it had been estimated that non safety-related service water could not be used to cool 'B' ESW train heat loads for 102 hours of the requested 14-day extended Completion Time. A time frame of 48 hours had been estimated for the 'A' train of ESW. Using the conditional CDF values and the 102-hour timeframe, above, and the baseline Callaway CDF of 4.22E-5 yr^{-1}, the ICCDP, due to the 14-day 'B' ESW train outage, was determined as follows:

ICCDP = [(1.432E-4) – (4.22E-5)] * [102/(365.25)(24)] + [(8.012E-5) – (4.22E-5)] * [((14)(24) – 102)/(365.25)(24)] = 2.19E-6

This is the ICCDP value reported on page 14 of Attachment 1 of the submittal.

As an additional insight, the Fussell-Vesely importance of the Loss of Offsite Power (LOOP) initiating event in the baseline Callaway PRA is 0.55. Thus, non LOOP-initiated CDF accounts for 45 percent of the Callaway CDF. Therefore, non safety-related service water can be used to mitigate approximately 45 percent of the Callaway CDF. (Loss of All Service Water is a relatively small contributor to CDF.) The conditional CDF, crediting non safety-related service water (i.e., 8.012E-5 yr^{-1}), cited above, is approximately 45 percent lower than the conditional CDF which does not credit non safety-related service water (i.e., 1.432E-4 yr^{-1}). Therefore, the risk results for this application are consistent with the baseline Callaway PRA results.

Specific responses to the RAI questions are provided below.

a. Based on the amendment's cited precedent (specifically page 5 of the Catawba SE, 3rd paragraph), AmerenUE believes that compliance with the risk metrics of RG 1.174 and RG

1.177 is not specifically required for one-time Completion Time extensions if adequate compensatory measures can be implemented with NRC staff concurrence. Due to the required work for system draining and refill to implement the modification and restore the ESW system to Operable status, as discussed on page 13 of Attachment 1, AmerenUE cannot credit the normal service water system during the entire 14-day Completion Time. Although we provided risk values for our estimated impact times when no service water would be flowing, our formal Tier 2 commitment must remain flexible to account for any potential, unexpected schedule delays that might be encountered when implementing a modification of this scope. Therefore, our Tier 2 commitment is hereby reworded to:

> "The one-time extended Completion Time will be used such that 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 affected ESW train heat loads for as much of the 14-day Completion Time as possible. However, this cooling of heat loads by the normal service water system may be unavailable for the entire one-time Completion Time extension. During the portion of the extended Completion Time that normal service water is supplying the ESW loads, automatic closure signals for the normal service water to ESW supply and return cross-connect valves will be defeated. Automatic open signals for the ESW return to UHS valves will also be defeated during this portion of the extended Completion Time as well."

b. In order to respond to the first part of RAI Question 7.b, the core damage cutsets associated with the conditional CDF, with one train of ESW out of service and non safety-related service water unavailable to cool the affected ESW train heat loads, were reviewed. Specifically, core damage cutsets with a frequency of >1E-6 yr^{-1} were reviewed to assess the mitigative effect of the availability of non safety-related service water on these cutsets. (Note that this set of cutsets, i.e., those with a CDF of >1E-6, is a reasonable sample, as they comprise 58 percent of the conditional CDF of 1.432E-4 yr^{-1}.) Of the 24 cutsets with frequencies above 1E-6, ten (10) could be mitigated via cooling of the out-of-service ESW train heat loads with non safety-related service water. These ten cutsets have a combined CDF of 3.65E-5 yr^{1}, or 43 percent of the total CDF of the cutsets reviewed (i.e., those with individual cutset CDFs of >1E-6). These ten cutsets all involve a non-LOOP initiator, failure of one train of mitigation equipment due to an ESW train being taken out of service in such a way that non safety-related service water cannot be used to cool the out-of-service ESW train heat loads, and failure of the other (i.e., Operable) mitigation train. Each of the ten cutsets could be mitigated if non safety-related service water were available to cool the affected ESW train head loads. The cutset sample reviewed and the conclusions drawn are representative of the lower frequency core damage cutsets.

A description of the non safety-related, normal service water system (NSW system) follows.

The (NSW) system consists of three (3) pumps, each taking suction on the natural draft cooling tower basin, and each having a hydraulically-operated discharge isolation valve. The NSW system cools non safety-related plant heat loads, and ESW heat loads, during normal plant

operation. Following a Safety Injection Signal (SIS) or loss of offsite power (LOOP) event, redundant, safety-related motor-operated valves isolate NSW from the ESW loads, and the ESW pumps provide cooling water from the ultimate heat sink (UHS) pond to cool the safety-related ESW heat loads. The NSW system is powered from non safety-related AC power. The NSW system is credited in the Callaway PRA for cooling ESW heat loads, should ESW fail, provided offsite power is available.

8. Question: The licensee has included a regulatory commitment in its application to implement the proposed TS changes prior to December 31, 2008. Also, the licensee has proposed that the one-time TS change to extend the ESW CT in the TSs will expire on that same date. Since the amendment must be implemented prior to it use, the licensee must implement the amendment at least 14 days before December 31, 2008, to be able to use the full 14 days for the ESW CT. The extended CT can not be used after December 31, 2008. The licensee is requested to address this apparent inconsistency between the regulatory commitment and the proposed extended CT.

Response:

AmerenUE considered the Attachment 6 commitment to implement the amendment "prior to December 31, 2008" to cover the intended application of the one-time Completion Time extension. In order to dispel any confusion, that commitment is hereby changed such that "the proposed changes to the Callaway Technical Specifications will be implemented prior to December 3, 2008" which accounts for the use of one-time 14-day Completion Times on both ESW trains.

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
The proposed changes to the Callaway Technical Specifications will be implemented prior to December 3, 2008.	Prior to December 3, 2008.
No PRA-modeled equipment, other than the affected 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 commitment applies only to PRA-modeled equipment in the protected ESF train (ESF train not served by the inoperable ESW train). No work will be allowed on the protected (operable) ESW train. No work will be allowed in the area of (within 20 feet) equipment in the protected ESF train except for yard piping work and work in control building room 3101 where the underground piping enters the control building.	Administrative controls in place at time amendment is implemented.
Access to the switchyard will be limited and no work will be allowed in the switchyard during the one-time extended Completion Time.	Administrative controls in place at time amendment is implemented.
The one-time extended Completion Time will not be scheduled during forecasted inclement weather conditions. National Weather Service reports will be monitored prior to and throughout each ESW train LCO outage.	Administrative controls in place at time amendment is implemented.
From EDP-ZZ-01129 Appendix 2 for a DG or ESW outage, the following Tier 2 commitments are also added to the scope of this amendment request: • The turbine-driven auxiliary feedwater pump (TDAFP) will remain Operable. • 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.	Administrative controls in place at time amendment is implemented.

The one-time extended Completion Time will be used such that 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 affected ESW train heat loads for as much of the 14-day Completion Time as possible. However, this cooling of heat loads by the normal service water system may be unavailable for the entire one-time Completion Time extension. During the portion of the extended Completion Time that normal service water is supplying the ESW loads, automatic closure signals for the normal service water to ESW supply and return cross-connect valves will be defeated. Automatic open signals for the ESW return to UHS valves will also be defeated during this portion of the extended Completion Time as well.	Administrative controls in place at time amendment is implemented.
Prior to entering the extended ESW Completion Times, the Operations department will review the operational status of fire protection and flood mitigation 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 protected ESW train will be performed, except for the portion of the protected train inside containment or otherwise excluded by the Radiation Protection department, for transient combustibles.	Administrative controls in place at time amendment is implemented.
One-hour and eight-hour fire and flood watches will be instituted on the protected ESW train as discussed in the response to RAI #4.	Administrative controls in place at time amendment is implemented.
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.	Administrative controls in place at time amendment is implemented.