

Description of the Proposed Changes

DESCRIPTION OF THE PROPOSED CHANGES

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DESCRIPTION OF THE PROPOSED CHANGE

1.0 SUMMARY DESCRIPTION

Pursuant to 10 CFR 50.90, "Application for amendment of license or construction permit," Ameren Missouri (Union Electric Company) herewith requests NRC approval of proposed Revision 54 to the Radiological Emergency Response Plan (RERP) for the Callaway Plant. The changes proposed per Revision 54 of the RERP are being submitted for approval prior to implementation, pursuant to 10 CFR 50.54(q)(4).

There are two proposed changes to the Callaway Plant RERP. The first proposed change would remove the 15-minute response goal/30-minute activation goal during "Normal Work Hours" and allow the current 75-minute response/90-minute activation goal for "Off-Normal Hours" to be the standard for all hours of the day. The second proposed change would eliminate the 30-minute follow-up notification for the State of Missouri and Emergency Planning Zone (EPZ) counties and implement a 60-minute follow-up notification until the plant conditions are relatively stable such that the follow-up notification frequency may be reduced to an agreed upon frequency, with the consensus of the State Emergency Management Agency (SEMA) and the EPZ counties, when event conditions are relatively stable.

It should be noted that no change to the 15-minute initial notification requirement that applies after declaration of an emergency is being proposed. Additionally, no change to staffing requirements is being proposed.

Ameren Missouri has reviewed the proposed changes against the planning standards in 10 CFR 50.47(b) and the requirements in 10 CFR Part 50, Appendix E, "Emergency Planning and Preparedness for Production and Utilization Facilities," and has concluded that the standards and requirements will continue to be met.

2.0 DETAILED DESCRIPTION

2.1 Proposed Change Regarding Response and Activation Goals

Callaway currently has two timed response/activation goals specifically called out in the Radiological Emergency Response Plan (RERP) in regard to Emergency Response Organization (ERO) augmentation: a 15-minute response/30-minute activation during "Normal Hours" and a 75-minute Response/90-minute Activation during "Off Normal Hours."

In the RERP, Normal Working Hours are defined as follows:

Normal Working Hours - Current standard core hours per Company and Plant policies and procedures. Off hours are the remaining hours in the week, including weekends and holidays.

Normal Hours and Off Normal Hours are further defined in the RERP implementing procedure EIP-ZZ-A0001, "Emergency Response Organization," Revision 021, as follows:

Normal Hours - The Callaway Energy Center work schedule consists of nine days in each two-week period with alternate Fridays off. The Friday worked is an 8-hour workday. The workday for Monday through Thursday is nine hours. (Due to variances in work schedules the core work hours are considered to be 0700 to 1500.)

Off Normal Hours - The following times are excluded from the normal working hours and are considered Off Normal Hours.

- Hours outside of the Normal Hours work schedule
- Weekends (Saturdays and Sundays and Alternate Work Schedule Friday off)
- Holidays
- Mondays preceding a Tuesday Holiday
- Fridays following a Thursday Holiday
- Outages, if the Outage Support Center (OCC) is manned 24-7
- Any time covered under POL0037, "Callaway Energy Center Inclement Weather Policy"
- Any time covered under POL0049, "Callaway Plant Pandemic Plan"

On-Shift and On-Site position duties, as well as response times, are identified in the Callaway RERP, Table 5-1, "Emergency Staffing Requirements/On-Shift Emergency Response" and Table 5-2, "Emergency Staffing Requirements/Emergency Response Organization." Response times are also covered in Section 6.4, "Mobilization."

Revising the response and activation goals specifically requires the following changes to be made to the RERP:

The definitions section is changed as follows:

Duty - Rotating on-call coverage, scheduled around the clock, to ensure response ~~during off normal working hours.~~

~~**Normal Working Hours** - Current standard core hours per Company and Plant policies and procedures. Off hours are the remaining hours in the week, including weekends and holidays.~~

Table 5-2 is changed to eliminate the normal hours response goals and to eliminate the 30-minute activation goal for the Technical Support Center (TSC) and the Emergency Operations Facility (EOF). The two-hour response goal for the Joint Information Center (JIC) is unchanged.

A marked-up copy and a clean copy of the Callaway Plant RERP are provided as Enclosures 2 and 3 to this RERP amendment request, respectively.

2.2 Proposed Change Regarding Extension of "Follow-Up" Notification Goal

Callaway Plant is currently required to contact the state of Missouri and EPZ counties within 15 minutes after the declaration of an emergency, followed by follow-up notifications at a 30-minute

frequency. Providing follow-up notifications at a 30-minute frequency has proven to be a challenge to the Emergency Response Organization (ERO) in the Control Room at the beginning of an emergency event. This proposed change was discussed with State and County representatives during the 2Q2021 Emergency Management Director (EMD) meeting held on 5/17/2021, resulting in general agreement to pursue the change.

Revising the follow-up notification goal specifically requires the following changes to be made to the RERP:

RERP section 6.3, "Notification," is changed as follows:

Initial notifications to the State and local authorities shall be initiated within 15 minutes after the declaration of an emergency. Periodic updates are made to the State and local authorities upon activation of the State and local Emergency Operations Centers. These follow up notifications should be made whenever significant changes in Plant status occur, or approximately every half hour ~~when~~ **until** conditions are relatively stable. Follow-up notifications should be made with the same urgency as initial notifications when changes in Protective Action Recommendations are involved. When **event** conditions are relatively stable ~~and the Plant remains at an UNUSUAL EVENT~~, the follow-up notification frequency may be reduced **to an agreed upon frequency**, with the consensus of SEMA and the EPZ counties. Updates and notifications should be shared with State and local authorities present in the EOF.

RERP section 6.4, "Mobilization," is changed as follows:

~~During normal working hours, plant alarms, the public address system, and the cellular paging system are the primary means of notifying plant personnel.~~

If an ALERT (or higher) classification is declared ~~during normal working hours~~, all qualified personnel (***Fit for Duty***) report to their Emergency Response Facility and then unnecessary personnel will be dismissed. Some departments have policies or procedures that designate specific personnel to respond ~~during normal working hours~~. Emergency response ~~during off hours~~ is by Emergency Response Duty Personnel and Emergency Response Augmentation Personnel.

~~During off normal working hours,~~ The plant alarms, public address system, and the cellular paging system are used to notify **ERO** personnel. An automated calling system is an alternate or additional method of mobilizing selected ERO personnel.

When the Emergency Response Organization is notified ~~via the Cellular Paging System~~ Emergency Response Duty personnel (***Minimum Staffing***) report to the TSC and the EOF within approximately 75 minutes to relieve the Control Room of emergency response functions not directly related to Plant operation.

A marked-up copy and a clean copy of the Callaway Plant RERP are provided as Enclosures 2 and 3 to this RERP amendment request, respectively.

3.0 TECHNICAL EVALUATION

3.1 Justification for Proposed Change Regarding Response and Activation Goals

When "Normal Work Hours" was defined or considered at the time of original plant licensing, it was a common assumption that a normal work week was Monday thru Friday, with work hours of 07:00 to 15:00, 09:00 to 17:00, or some variation of hours within those time frames. Today, the "Normal" work week is much more variable in terms of both the hours and the days worked. Additionally, today, many personnel are working from home much of the time as a permanent, or semi-permanent arrangement.

The Callaway Plant Radiological Emergency Response Plan, Appendix J, "On-Shift Staffing Analysis Report," documents that the On-Shift ERO Staff is capable of stopping and/or mitigating design basis accidents for up to, and including, 90 minutes without additional response (ERO augmentation). This aligns with the 90-minute activation time used in the "Off-Normal Hours" response.

In response to the recent COVID-19 pandemic, Callaway Plant (with its parent company, Ameren Corporation) implemented a Pandemic Policy which mandated that workers work from home when possible to avoid contracting COVID-19 and spreading the virus. Based on that experience, Callaway Plant and Ameren Corporation desire to permanently implement many of the Pandemic protocols both in the interest of employee safety and to allow flexibility in work arrangements.

During the early stages of the pandemic, only essential workers were allowed on site. This put the plant in an "Off Normal Hours" scenario. This meant that the majority of the ERO members were working from home and all members understood that if the ERO were to be activated, that all (non-ill) members, who were fit for duty, were to respond within the 75/90-minute expectation. This expectation was applicable 24 hours a day, 7 days a week.

Prior to the pandemic, the "Normal Hours" response proved itself to be an unnecessary burden on the ERO members, as explained by the following examples:

- The On-Duty Team members could not attend any offsite training during their duty week, unless they scheduled a trade with another ERO member qualified in their position. Many times, the other ERO members were also attending the same training, thus leaving one person unable to attend. The ERO members attending could still arrive within the 75/90-minute response time.
- The On-Duty Team members could not perform work or observations of co-workers at the cooling tower, security range, or river intake pump house, unless they scheduled a trade with another ERO member qualified in their position, as these plant locations are outside the 15/30-minute goal.
- If an On-Duty Team member became ill or had a family emergency, that person could not leave the site until a replacement was found on site, or the replacement was able to drive into the plant site.

- If an On-Duty Team member was forced to cover a back shift due to an emergency, this would force another ERO member to cover the "back shifted" worker's day shift slot (Normal Hours). The ERO member now covering the "Normal Hours" response would have to ensure nothing on that person's new schedule would cause him/her to be located greater than 15 minutes from the first ERO member's Emergency Response Facility (ERF).

It should be noted that there is no regulatory basis for a shorter response time during Normal Working Hours than during Off-Normal Hours. Callaway Plant does not reserve the performance of any surveillance or activity to Normal Working Hours. There is no more risk of an accident or emergency during Normal Working Hours than Off-Normal Hours, nor would the level of severity be different, if an event were to occur. The 15/30-minute activation / response time during Normal Working Hours is an unnecessary commitment made during a previous revision of the RERP. If a 75/90-minute response/activation goal is acceptable during Off-Normal Hours, then a 75/90-minute response/activation goal should be acceptable during all hours, as there is no higher probability of an emergency during Normal Working Hours as compared to Off-Normal Hours.

Callaway Plant has plant policies, procedures, processes, and training that cover the On-Shift staffing to manage an emergency event until the ERFs are activated at the 90-minute goal. On-shift personnel have continuing training, instructions, and qualifications to perform the required emergency mitigating actions, until the TSC and EOF are activated. The actual facility activation expectation, as stated in the notes of Table 5-2 of the RERP, is that "facility activation will be done as soon as practical."

When Callaway Plant activates the ERO, an "All-Call" is performed. No matter which team has duty, ALL members of the ERO, which are currently fit for duty and within the response time, respond to their designated ERF. The first person arriving for each qualified position will fill that position and then turn over to the Duty Team as they arrive. Additional personnel responding for each position will set up an around-the-clock work schedule. The ability to staff and activate the ERFs within the 75/90-minute goal is tested quarterly in an unannounced off-hours augmentation test.

3.2 Justification for Proposed Change Regarding Extension of "Follow-up" Notification Goal

Callaway Plant has determined that the proposed change from an approximately 30-minute follow-up notification frequency to an approximately 60-minute follow-up notification frequency until the plant event conditions are relatively stable, and the change in notification frequency when event conditions are relatively stable to a frequency agreed upon by SEMA and the EPZ counties, are acceptable. Meeting the approximate 30-minute follow-up notification is an unnecessary distraction to the ERO, especially the on-shift staff in the Control Room, at the beginning of an event when their focus should be on stopping or mitigating the event, rather than providing information. Callaway Plant has discussed this change with the State and EPZ counties, which have agreed to an approximately 60-minute follow-up notification frequency (or an agreed upon frequency by the State and EPZ Counties once the plant is relatively stable). Callaway Plant has determined that this change is acceptable and would reduce burden on the Control Room and ERO Staff during an emergency. Additionally, during rapidly changing conditions, the ERO Staff, especially the Operations Crew, could treat this approximately 30-minute follow-up notification frequency as a requirement and may become distracted with performing follow-up notifications instead of monitoring or mitigating the emergency.

Depending on the onset of a plant event, the need to perform immediate classifications and follow-up notifications could lead to confusion if they were to occur at the same time. In addition, it is reasonable to conclude that when event conditions are relatively stable, the follow-up notification frequency should be reduced to an agreed upon frequency with the consensus of SEMA and the EPZ counties.

4.0 REGULATORY EVALUATION

4.1 Applicable Regulatory Requirements/Criteria

Regulatory Requirements Regarding Response and Activation Goals:

The requirements for a timely augmentation are described in 10 CFR 50.47(b)(2). This regulation states, "On shift facility licensee responsibilities for emergency response are unambiguously defined, adequate staffing to provide initial facility accident response in key functional areas is maintained at all times, timely augmentation of response capabilities is available and the interfaces among various onsite response activities and offsite support and response activities are specified."

Additional direction is provided in 10 CFR 50 Appendix E IV, in Section A, which requires that "the organization for coping with radiological emergencies shall be described, including definition of authorities, responsibilities, and duties of individuals assigned to the licensee's emergency organization and the means for notification of such individuals in the event of an emergency." It continues to state in Section C that "the entire spectrum of emergency conditions that involve the alerting or activating of progressively larger segments of the total emergency organization shall be described."

Regulatory Guide 1.101, "Emergency Planning and Preparedness for Nuclear Power Reactors," Revision 4 states, in part, "The criteria and recommendations in Revision 1 of NUREG 0654/FEMA REP 1 are considered by the NRC staff to be acceptable methods for complying with the standards in 10 CFR 50.47(b) that must be met in onsite and offsite emergency response plans. Licensees and applicants may propose means other than those specified by the provisions for meeting applicable regulations."

On-Shift and On-Site position duties, as well as response times, are identified in the Callaway RERP Table 5-1 and Table 5-2. Additionally, response times are also covered in Section 6.4.

Regulatory Requirements Regarding Extension of Follow-Up Notification Goal:

The requirements for a timely and accurate notification are described in 10 CFR 50.47(b)(5) which states, "Procedures have been established for notification, by the licensee, of State and local response organizations and for notification of emergency personnel by all organizations; the content of initial and follow-up messages to response organizations and the public has been established; and means to provide early notification and clear instruction to the populace within the plume exposure pathway Emergency Planning Zone have been established."

Further direction is provided in 10 CFR 50.47(b)(6), which states, "Provisions exist for prompt communications among principal response organizations to emergency personnel and to the public."

Additionally, 10 CFR 50, Appendix E, states in part:

II.A - Onsite and offsite organizations for coping with emergencies and the means for notification, in the event of an emergency, of persons assigned to the emergency organizations.

II.B.1 - The means to be used for determining the magnitude of, and for continually assessing the impact of, the release of radioactive materials shall be described, including emergency action levels that are to be used as criteria for determining the need for notification and participation of local and State agencies, the Commission, and other Federal agencies, and the emergency action levels that are to be used for determining when and what type of protective measures should be considered within and outside the site boundary to protect health and safety.

II.D.3 – "A licensee shall have the capability to notify responsible State and local governmental agencies within 15 minutes after declaring an emergency. The licensee shall demonstrate . . ."

Callaway covers notifications to the State and local authorities in the Callaway RERP, section 6.3, "Notification."

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

4.2 Precedent

The proposed Callaway Plant RERP changes are similar to changes approved for other licensees, including Point Beach (ML 16118A154), Duane Arnold (ML 17220A026), Prairie Island (ML 17362A202), South Texas Project (ML 18159A212), Sequoyah (ML 18159A461) and Diablo Canyon (ML 19196A309). Furthermore, the proposed Callaway Plant RERP changes proposed in this RERP amendment request continue to meet the standards of 10 CFR 50.47 (b) and the requirements of 10 CFR 50, Appendix E.

4.3 No Significant Hazards Consideration Determination

Ameren Missouri has evaluated whether or not a significant hazards consideration is involved with proposed Revision 54 of the RERP by focusing on the three standards set forth in 10 CFR 50.92, "Issuance of amendment," as discussed below:

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

Response: No

The proposed changes in staff augmentation times and follow-up notification frequency have no effect on normal plant operation or on any accident initiator or precursor and do not impact the function of plant structures, systems, or components (SCCs). The proposed changes do not alter or prevent the ability of the ERO to perform their intended functions to mitigate the consequences of an accident or event. The ability of the ERO to respond adequately to radiological emergencies has been demonstrated as acceptable through a staffing analysis as required by 10 CFR 50 Appendix E.IV.A9. Appendix J demonstrates that the on-shift staffing is sufficient to handle the initial response for 90 minutes.

Therefore, the proposed RERP 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

The proposed changes in staff augmentation times and follow-up notification frequency do not impact the accident analysis. The proposed changes do not involve a physical alteration of the plant (i.e., no new or different type of equipment will be installed), a change in the method of plant operation, or new operator actions. The proposed changes do not introduce failure modes that could result in a new accident, and the changes do not alter assumptions made in the safety analysis. The proposed change does not alter or prevent the ability of the ERO to perform their intended functions to mitigate the consequences of an accident or event. The proposed change in staff augmentation times standardizes the staff augmentation response times in the RERP, which are demonstrated as acceptable through a staffing analysis as required by 10 CFR 50 Appendix E.IV.A9.

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

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

Response: No

Margin of safety is associated with confidence in the ability of the fission product barriers (i.e., fuel cladding, reactor coolant system pressure boundary, and containment structure) to limit the level of radiation dose to the public. The proposed change associated with removal of the 15/30-minute ERO response and activation goals does not impact operation of the plant or its response to transients or accidents. Likewise, the proposed change associated with the follow-up notification frequency for the State of Missouri and Emergency Planning Zone (EPZ) counties does not impact operation of the plant or its response to transients or accidents. These proposed changes do not

affect the Technical Specifications, nor do they involve any physical changes to the facility (including its fission product barriers). These proposed changes do not involve a change in the method of plant operation, and no accident analyses will be affected by the proposed changes. Safety analysis acceptance criteria are not affected by this proposed change. The revised RERP will continue to provide the necessary response staff to mitigate the consequences of an accident or event, with the proposed changes. A staffing analysis and a functional analysis were performed for the proposed changes on the timeliness of performing major tasks for the functional areas of RERP, and these analyses are unaffected by the proposed changes. The proposed changes have been determined to not adversely affect the ability to meet 10 CFR 50.54(q)(2), the requirements of 10 CFR 50 Appendix E, and the emergency planning standards as described in 10 CFR 50.47 (b).

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

In consideration of the above, Ameren Missouri concludes that the proposed Revision 54 to the Callaway RERP presents no significant hazards consideration under the standards set forth in 10 CFR 50.92(c), and on that basis, a finding of "no significant hazards consideration" is justified.

4.4 Conclusions

Based on the considerations discussed above, 1) there is a 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) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

5.0 ENVIRONMENTAL EVALUATION

Ameren Missouri has determined that the changes proposed per Revision 54 of the Callaway RERP would not revise a requirement with respect to installation or use of a facility or component located within the restricted area, as defined in 10 CFR 20, nor would they change an inspection or surveillance requirement. The proposed RERP revision does not involve (i) a significant hazards consideration, or (ii) authorize a significant change in the types or a significant increase in the amounts of any effluent that may be released offsite, or (iii) result in a significant increase in individual or cumulative occupational radiation exposure. Accordingly, the proposed RERP revision meets the eligibility criterion for a categorical exclusion set forth in 10 CFR 51.22(c)(9). Therefore, Ameren Missouri concludes that pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment needs to be prepared in connection with the proposed revision to the Callaway RERP.

6.0 REFERENCES

1. NUREG-0654/FEMA-REP-1, Revision 2, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants: Final Report"
2. Regulatory Guide 1.101, Revision 4, "Emergency Planning and Preparedness for Nuclear Power Reactors"
3. 10 CFR 50.47(b)
4. 10 CFR 50 Appendix