

March 1, 2001

Mr. Garry L. Randolph  
Vice President and Chief Nuclear Officer  
Union Electric Company  
Post Office Box 620  
Fulton, MO 65251

SUBJECT: RADIOLOGICAL EMERGENCY RESPONSE PLAN (RERP) CHANGES FOR  
CALLAWAY PLANT, UNIT 1 (TAC NO. MA9748)

Dear Mr. Randolph:

By letter dated July 18, 2000, as supplemented by letter dated February 27, 2001, you requested changes to Table 5-2, "Emergency Staffing Requirements Emergency Response Organization (On-site)," of the Radiological Emergency Response Plan for the Callaway Plant, Unit 1. The proposed changes to the table are for the Technical Support Center and the Emergency Operations Facility, and are as follows: (1) change the augmentation staff response time goals for normal and off hours with a specific goal of 15 and 75 minutes, respectively, for each time period, (2) footnote "+" is revised to add the requirement that emergency response facility (ERF) activation will be as soon as practical with a goal of being 15 minutes later than the augmentation staff response time goal, and (3) a new footnote "#" to identify the minimum staffing needed for ERF activation and to state that an ERF is considered activated when the minimum staff is ready to assume their responsibilities.

Based on the enclosed safety evaluation, it is concluded that the proposed changes to RERP Table 5-2 do not decrease the effectiveness of the RERP and are consistent with the planning standards of 10 CFR 50.47(b) and the requirements in Appendix E of 10 CFR Part 50. Based on this, the staff concludes that the proposed changes are acceptable. If there are any questions concerning this letter and Safety Evaluation, please contact me at 301-415-1307, or through the internet at [jnd@nrc.gov](mailto:jnd@nrc.gov).

Sincerely,

*/RA/*

Jack Donohew, Senior Project Manager, Section 2  
Project Directorate IV & Decommissioning  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

Docket No. 50-483

Enclosure: Safety Evaluation

cc w/encl: See next page

March 1, 2001

Mr. Garry L. Randolph  
Vice President and Chief Nuclear Officer  
Union Electric Company  
Post Office Box 620  
Fulton, MO 65251

SUBJECT: RADIOLOGICAL EMERGENCY RESPONSE PLAN (RERP) CHANGES FOR  
CALLAWAY PLANT, UNIT 1 (TAC NO. MA9748)

Dear Mr. Randolph:

By letter dated July 18, 2000, as supplemented by letter dated February 27, 2001, you requested changes to Table 5-2, "Emergency Staffing Requirements Emergency Response Organization (On-site)," of the Radiological Emergency Response Plan for the Callaway Plant, Unit 1. The proposed changes to the table are for the Technical Support Center and the Emergency Operations Facility, and are as follows: (1) change the augmentation staff response time goals for normal and off hours with a specific goal of 15 and 75 minutes, respectively, for each time period, (2) footnote "+" is revised to add the requirement that emergency response facility (ERF) activation will be as soon as practical with a goal of being 15 minutes later than the augmentation staff response time goal, and (3) a new footnote "#" to identify the minimum staffing needed for ERF activation and to state that an ERF is considered activated when the minimum staff is ready to assume their responsibilities.

Based on the enclosed safety evaluation, it is concluded that the proposed changes to RERP Table 5-2 do not decrease the effectiveness of the RERP and are consistent with the planning standards of 10 CFR 50.47(b) and the requirements in Appendix E of 10 CFR Part 50. Based on this, the staff concludes that the proposed changes are acceptable. If there are any questions concerning this letter and Safety Evaluation, please contact me at 301-415-1307, or through the internet at jnd@nrc.gov.

Sincerely,

*/RA/*

Jack Donohew, Senior Project Manager, Section 2  
Project Directorate IV & Decommissioning  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

Docket No. 50-483

Enclosure: Safety Evaluation

cc w/encl: See next page

DISTRIBUTION:

PUBLIC

PDIV-2 Reading

SRichards (RidsNrrDlpmPdiv)

RidsNrrPMJDonohew

KGibson (RidsNrrDipmlolb)

RidsNrrLAEPeyton

RidsOgcRp

RidsAcrsAcnwMailCenter

RidsRgn4MailCenter (WJohnson, RIV)

\* IOLB Memorandum dated February 27, 2001.

Accession No. ML010600400

OFFICE	PDIV-2/PM	PDIV-2/LA	IOLB/SC	PDIV-2/SC
NAME	JDonohew:lcc	EPeyton	KGibson*	SDembek
DATE	03/01/2001	3/01/01	02/27/01	3/1/01

OFFICIAL RECORD COPY

Callaway Plant, Unit 1

cc:

Professional Nuclear  
Consulting, Inc.  
19041 Raines Drive  
Derwood, MD 20855

John O'Neill, Esq.  
Shaw, Pittman, Potts & Trowbridge  
2300 N. Street, N.W.  
Washington, D.C. 20037

Mr. J. Schnock  
Supervising Engineer  
Quality Assurance Regulatory Support  
Union Electric Company  
Post Office Box 620  
Fulton, MO 65251

U.S. Nuclear Regulatory Commission  
Resident Inspector Office  
8201 NRC Road  
Steedman, MO 65077-1302

Mr. J. V. Laux, Manager  
Quality Assurance  
Union Electric Company  
Post Office Box 620  
Fulton, MO 65251

Manager - Electric Department  
Missouri Public Service Commission  
301 W. High  
Post Office Box 360  
Jefferson City, MO 65102

Regional Administrator, Region IV  
U.S. Nuclear Regulatory Commission  
Harris Tower & Pavilion  
611 Ryan Plaza Drive, Suite 400  
Arlington, TX 76011-8064

Mr. Ronald A. Kucera, Deputy Director  
Department of Natural Resources  
P.O. Box 176  
Jefferson City, MO 65102

Mr. Otto L. Maynard  
President and Chief Executive Officer  
Wolf Creek Nuclear Operating Corporation  
Post Office Box 411  
Burlington, KA 66839

Mr. Dan I. Bolef, President  
Kay Drey, Representative  
Board of Directors Coalition  
for the Environment  
6267 Delmar Boulevard  
University City, MO 63130

Mr. Lee Fritz  
Presiding Commissioner  
Callaway County Court House  
10 East Fifth Street  
Fulton, MO 65151

Mr. Alan C. Passwater, Manager  
Licensing and Fuels  
Union Electric Company  
Post Office Box 66149  
St. Louis, MO 63166-6149

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO RADIOLOGICAL EMERGENCY RESPONSE PLAN CHANGE

UNION ELECTRIC COMPANY

CALLAWAY PLANT, UNIT 1

DOCKET NO. 50-483

1.0 INTRODUCTION

By letter dated July 18, 2000, as supplemented by letter dated February 27, 2001, Union Electric Company (the licensee) requested changes to Table 5-2, "Emergency Staffing Requirements Emergency Response Organization (On-site)," of the Radiological Emergency Response Plan (RERP) for Callaway Plant (Callaway). The proposed changes to the table are for the Technical Support Center (TSC) and the Emergency Operations Facility (EOF), and are as follows: (1) change the augmentation staff response time goals to 15 minutes for normal hours and to 75 minutes, or 2 hours for a few emergency positions, for off hours; (2) footnote "+" is revised to add the requirement that emergency response facility (ERF) activation will be as soon as practical with a goal of being 15 minutes later than the augmentation staff response time goal; and (3) a new footnote "#" to identify the minimum staffing needed for ERF activation and to state that an ERF is considered activated when the minimum staff is ready to assume their responsibilities.

There were discussions between the staff and the licensee on the current RERP and the proposed RERP changes. These discussions were conducted in conference calls and e-mails between the staff and the licensee (ADAMS Accession No.: ML0100300059), and the clarifying information is presented in Section 2.0 below.

2.0 BACKGROUND

In the review of the proposed changes to RERP Table 5-2, Revision 23 dated December 1999 of the RERP (up to change CN00-06 dated October 20, 2000) was reviewed by the staff. The following is a description of the RERP and the proposed plan changes based on the review of the application and the plan, and the conference calls held with the licensee on November 3 and 17, 2000.

RERP Table 5-1 identifies the minimum on-shift emergency response organization (ERO) personnel for emergencies. RERP Table 5-2 provides the desired number of personnel to augment the on-shift ERO personnel. This is not the minimum required number of personnel for the licensee's capability to augment the on-shift staff for emergencies. Although RERP Table 5-2 indicates these personnel will be located in the TSC, EOF, and Joint Public Information Center (JPIC), which are the ERFs for Callaway, the primary purpose of the table is to satisfy, in part, planning standard 10 CFR 50.47(b)(2). The proposed RERP changes do not

change RERP Table 5-1 and do not change the staffing given in RERP Table 5-2, but would change the response times for the licensee's capability to augment the on-shift staff for emergencies.

RERP Table 5-2 links the licensee's capability to augment the on-shift staff for emergencies to an emergency classification and identifies the ERF where the augmenting responders will be located. However, the licensee indicates in RERP Section 6.4 that the emergency coordinator can call these personnel as needed without mobilizing the ERFs. Therefore, planning standard 10 CFR 50.47(b)(2) continues to be met.

The response goals in RERP Table 5-2 of 30-45 and 60-75 minutes (i.e., rapid and later responders) are the times from declaration of the Alert (or higher) classification to when the identified personnel walk into the ERF. The proposed response goals have this same meaning. The footnote "+" concerning inclement weather and/or road conditions means that the response goals are only for good weather and road conditions, and this meaning is not being altered by the proposed RERP changes.

The first part of the proposed RERP changes is to change the current augmentation staff response goals of 30-45 and 60-75 minutes to 15 minutes for normal hours and 75 minutes for off hours. Normal hours are 7 a.m. to 3:30 p.m. Monday through Friday (i.e., the core hours), and off hours are the remaining hours of the week. The proposed change is doing away with the rapid versus later responders in RERP Table 5-2, but will have the response goal for off hours no later than the current 75 minutes for later responders.

The second part of the proposed RERP changes is to have the ERF activation goal be as soon as practical, but within 15 minutes of when the identified minimum staffing (for ERF activation) is at the ERFs. The current RERP does not specify a goal for ERF activation after staff augmentation. There is no requirement to activate the ERFs as soon as practical in the current RERP.

Upon declaration of an emergency, the shift supervisor becomes the acting emergency coordinator (EC) for the emergency until relieved by the emergency duty officer (EDO, a predesignated senior management representative that may not be on-site). The ERFs are mobilized (i.e., the call-up of augmenting on-shift staff is started) at the Alert (or higher) classification, which is not being changed.

ERF activation means that the ERF staff is ready to take over from the control room; however, the EC in the control room may decide to delay this changeover. The EC can transfer the responsibility of emergency functions to the ERFs one function at a time (although the notification and dose assessment functions must go together). The ERFs become operational with the complete changeover of emergency functions and the EC is in the TSC. The staffing for the TSC in RERP Table 5-2 includes the EC in the TSC; however, this position becomes effective only when the responsibility is transferred to the TSC by the EC in the control room. This process is not being changed by the proposed RERP changes; however, the proposed RERP changes will add a 15-minute goal to activate the ERFs after the augmentation staff arrive at the ERFs. In the current RERP, there is no time-period goal for ERF activation after augmented staff arrival at the ERFs.

The proposed on-shift staff augmentation and ERF activation goals for normal hours will be earlier than that given in the current RERP (i.e., the 15 minutes for augmentation and 15 minutes for activation is less than the 45 minutes for rapid responders in RERP Table 5-2). The proposed goals for off hours mean that the rapid responder arrivals and ERF activation could be 30 minutes later than that allowed by the current RERP. For normal hours, the later responders will arrive earlier than the current 60-75 minute goal of the current RERP. For off hours, the rapid responders would be delayed, but the later responders would still arrive at the 75 minutes allowed by the current RERP. The off hours goal would delay only 14 of the 55 individuals (i.e., the 30-45 minute rapid responders) listed in RERP Table 5-2 for the ERFs.

The third part of the RERP changes identifies 7 of the 14 rapid responders as the minimum staffing to activate the ERFs. The licensee considers these 7 positions as the minimum needed to activate the ERFs. These 7 positions are not being changed by the proposed RERP changes and the proposed RERP changes merely identify this minimum staff needed to activate the ERFs. The licensee has activated the ERFs in the past based on this minimum staff.

The desired number listed in RERP Table 5-2 is not the minimum number that the licensee has committed to have at the ERF by the response goal times in the table because RERP Table 5-2 identifies the entire ERO for the emergency. The desired number is the ERO staffing for the event. The desired number is not being changed by the proposed RERP changes. The licensee has not defined a minimum staffing level for augmentation of the on-shift emergency staffing in RERP Table 5-2, or elsewhere in the RERP. RERP Table 5-1 does list the minimum on-shift emergency response staffing, which is 15 individuals.

The coordinators listed in RERP Table 5-2 are trained to perform the tasks specified in the table for the staff of the coordinator.

There are three Rad/Chem Technician emergency positions in RERP Table 5-1 that have the three emergency functions of Health Physics (HP) Operation (surveys, sampling, monitoring analysis, job coverage, emergency team support), HP Tech Support (evaluate effluent monitors and perform offsite dose projections), and Chemistry (chemistry sampling, radiochemical analysis, and post accident sampling system). The technicians for HP Tech Support and Chemistry are trained to do the HP Operations work, but the reverse is not true. The RERP stated that the EC can augment the on-shift staff with any personnel determined necessary to mitigate or terminate the emergency and can augment independent of activating the ERFs. The EC can also direct individuals to perform work as it is needed to meet the emergency.

The proposed RERP changes are to allow more time for ERO personnel to come to the site in the off hours and to add a goal to the RERP for activating the ERFs, and is not changing any other part of the RERP. The licensee wants to increase the number of personnel that is capable of responding to emergencies within the required response times.

The above descriptions of the current RERP and the RERP plan changes were agreed to by the licensee in the conference calls and the supplemental letter of February 27, 2001. This letter included definitions of ERF activation, ERF becoming operational, normal hours, and off hours for the RERP.

### 3.0 APPLICABLE REGULATIONS AND GUIDANCE

The applicable regulations and guidance on the requirements that licensees must meet for emergency plans (EPs) at their plants are the following:

#### 3.1 Regulations

- Section 10 CFR 50.47(b) of 10 CFR 50.47, "Emergency plans," including the following planning standards:
  - 10 CFR 50.47(b)(1) states, in part: "... the emergency responsibilities of the various supporting organizations have been specifically established, and each principal response organization has staff to respond and to augment its initial response on a continuous basis."
  - 10 CFR 50.47(b)(2) states, in part: "...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 ..."
  - 10 CFR 50.47(b)(8), states: "Adequate emergency facilities and equipment to support the emergency response are provided and maintained."
- Appendix E, "Emergency Planning and Preparedness for Production and Utilization Facilities," to 10 CFR Part 50 provides requirements on the emergency organization (Section IV.A), assessment of radiological releases (Section IV.B), activation of the emergency organization (Section IV.C), notification procedures (Section IV.D), emergency facilities and equipment (Section IV.E), training (Section IV.F), and maintaining emergency preparedness (Section IV.G).

#### 3.2 Guidance

- Regulatory Guide 1.101, "Emergency Planning and Preparedness for Nuclear Power Reactors," Revision 2, states, in part:

"The criteria and recommendations contained 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 that must be met in on-site and off-site emergency response plans."
- NUREG-0654/FEMA-REP-1, Rev 1, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," states in part:

##### B. Onsite Emergency organization

"5. Each licensee ... the emergency. These assignments shall cover the emergency functions in Table B-1 entitled "Minimum Staffing Requirements for Nuclear Power Plant Emergencies." The minimum on-shift staffing shall be as

indicated in Table B-1. The licensee must be able to augment on-shift capabilities within a short period after declaration of an emergency. This capability shall be as indicated in Table B-1 ..."

#### H. Emergency Facilities and Equipment

"1. Each licensee shall establish a Technical Support Center ... in accordance with NUREG-0696, Revision 1."

"2. Each licensee shall establish an Emergency Operations Facility ... in accordance with NUREG-0696, Revision 1."

- NUREG-0696, Revision 1, "Functional Criteria for Emergency Response Facilities," states, in part:

2.3. "Upon activation of the TSC, ... achieve full functional operation within 30 minutes."

4.3. "Upon EOF activation, ... achieve full functional operation within 1 hour."

- NUREG-0737, Supplement 1, "Clarification of TMI [Three Mile Island] Action Plan Requirements" states, in part:

8.2.1.a. The TSC will perform EOF functions for the Alert Emergency classification, Site Area Emergency classification, and General Emergency classification until the EOF is functional.

8.2.1.j. TSC - "... be fully operational within approximately 1 hour after activation."

8.4.1.j. EOF - "Staffed using Table 2 (previous guidance approved by the Commission) as a goal. Reasonable exceptions to goals for the number of additional staff personnel and response times for their arrival should be justified and will be considered by NRC staff."

In the matter of a licensee making changes to an EP of a nuclear power plant, 10 CFR 50.54(q) states that licensees may change their EPs without Commission approval only if these changes to these plans do not decrease the effectiveness of the plans and the plans, as changed, continue to meet planning standards of Paragraph 50.47 and the requirements of Appendix E to 10 CFR Part 50. The licensee stated that the proposed increase in the response time goals could technically be considered a decrease in effectiveness in the current commitments in the RERP and requested that the staff review the proposed changes to the RERP.

#### 4.0 EVALUATION

In its application, the licensee proposed to change RERP Table 5-2 to (1) revise the augmentation staff response goals, (2) add the requirement to footnote "+" of RERP Table 5-2 that ERF activation will be as soon as practical with a goal of 90 minutes for off hours and 30



minutes during normal working hours (15 minutes from arrival of the ERO personnel at the ERF); and (3) add footnote "+" to RERP Table 5-2 to identify the minimum ERO personnel needed to activate the ERFs. The only ERFs affected are the TSC and EOF. The licensee stated that the proposed RERP will continue to meet the planning standards of 10 CFR 50.47(b) and the requirements of Appendix E to 10 CFR Part 50.

To justify the increase in response time goals, the licensee provided information concerning the updated Callaway Probabilistic Risk Assessment (PRA) with estimates of core damage frequency. In NUREG-0396, a spectrum of potential consequences tempered by probability considerations are used as part of the rationale for emergency planning notwithstanding cost effectiveness considerations. A risk from any one event of a spectrum of accidents would be equal to the probability of that accident times the consequences expected from that accident. For emergency planning purposes, the probability of any given accident becomes one when it occurs. Consequently radiological emergency planning is not based upon probabilities, but on the public perceptions of the problem and what could be done to protect the public health and safety. The licensee's information based on the Callaway PRA results were not considered in evaluating the proposed RERP changes.

Additionally Regulatory Information Summary (RIS) 2001-02, "Guidance on Risk Informed Decisionmaking in License Amendment Reviews," dated January 28, 2001, provides guidance on the use of PRA results that applies to emergency planning. RIS 2001-02 indicates that the final acceptability of the proposed change should be based upon a consideration of regulatory requirements, as well as on adherence to the safety principles, and not solely on the basis of a comparison of qualitative PRA results with numerical acceptance guidelines. Therefore, for emergency planning purposes, PRAs by themselves are not weighted as much as other factors, such as compensatory measures which would offset a decrease in effectiveness by extending response time goals for emergency plan changes.

#### 4.1 Change to Response Time Goals

In the proposed changes to the response time goals in RERP Table 5-2, the current response goals of 30-45 minutes for 10 emergency positions (12 ERO personnel) and 60-75 minutes for 16 emergency positions (36 ERO personnel) would be changed to 30 minutes for normal hours and 75 minutes for off hours. The other response goals in the table of (1) 2 hours for 2 emergency positions (3 ERO personnel), and (2) as-needed for the administrative support, would be changed to 15 minutes for normal hours and the current 2 hours and as needed for off hours. These changes are only for the TSC and EOF because the response time goals for the JPIC are not being changed.

In this proposal, the licensee will either increase or maintain the required response time goals of the current RERP Table 5-2 except for the response time goal for 12 ERO personnel (out of a total of 58 ERO personnel). The current response time goal for these 12 ERO personnel, the rapid responders in RERP Table 5-2, is to allow these personnel to increase the time for them to travel to the site in the off hours during an emergency from 30 to 45 minutes to 75 minutes. This would be an increase in travel time of 15 minutes. The licensee stated that this proposal is to allow more flexibility in assuring ERO responsibilities are assigned to the more experienced and knowledgeable members of the plant staff as well as enhancing personnel safety when responding to the plant emergency.

The proposed extension of the ERF augmentation time only affects a small fraction of the total ERO personnel in RERP Table 5-2.

In Section 4.3 of the Safety Evaluation issued by the staff's letter dated September 29, 2000, to Entergy Operations, Inc., for Grand Gulf Nuclear Station, the staff listed the criteria for increasing the augmentation time for ERO personnel responding to an emergency. Meeting the criteria means the proposed ERF augmentation times meet planning standard 50.47(b)(2) for timely augmentation of the ERFs. This criteria and how the Union Electric's proposal for Callaway addresses the criteria is discussed below.

(1) Separate Emergency Staff Augmentation from ERFs Becoming Operational

In the RERP, the ERFs are augmented, then are activated, and then become operational as discussed in Section 2.0 above. The emergency coordinator can also augment the on-shift emergency personnel as needed without mobilizing the ERFs. Augmentation of the on-shift emergency personnel is separate from ERF activation and becoming operational. The response time goals in the current RERP Table 5-2 are the time from declaring an Alert classification to when the augmenting ERO personnel arrive at the designated ERF. The licensee has proposed new response time goals for augmenting the ERFs and a response time goal for having the ERFs activated. The proposal to activate the ERF as soon as practical with a goal of 15 minutes after the minimum staff personnel have arrived at the ERF is a new more-restrictive requirement. The time for the ERFs to become operational after they are activated is not being changed by the proposed changes to RERP Table 5-2. Based on this, the staff concludes that the current RERP already meets this criterion.

(2) Description of Normal Plant Operating Organization to Handle the Extended Augmentation Time

Callaway is a single unit site with the operating staff for the one unit. RERP Table 5-1, which is not being changed, shows the minimum number of on-shift personnel required to respond to an emergency. The minimum number listed in the table are 15 dedicated ERO personnel. This on-shift staffing is greater than the minimum staffing in Table B-1 of NUREG-0654, "Criteria for Preparation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," listed in Section 3.2 above.

There have been NRC inspections, in the past 30 months, of this on-shift organization in emergency response simulations that are documented in three inspection reports issued by the Nuclear Regulatory Commission (NRC) staff. These are Inspection Reports (IRs) Nos. 50-483/98-14, 50-483/98-23, and 50-483/2000-04, which were issued July 17 and October 28, 1998, and February 10, 2000, which are discussed below:

- IR 50-483/98-14 dated July 17, 1998: Inspection walkthroughs were conducted with two control room crews using a dynamic simulation on the control room simulator. Each walkthrough lasted approximately 2 hours. During the scenarios, each crew was evaluated on the ability to evaluate plant conditions, identify emergency action levels, classify the emergency, make timely notifications to offsite agencies, evaluate radiation information and perform dose assessments, and recommend appropriate protective actions. The crew performance was considered generally good. Both crews effectively

performed communications, protective action recommendations, and dose assessments. The only deficiency identified was a delayed classification that was identified as a performance weakness. It was also stated that the licensee's ability to meet emergency plan augmentation goals has been a recurring problem.

- IR 50-483/98-23 dated October 28, 1998: The inspection was of an unannounced off-hours exercise that involved one control room crew and lasted almost three hours. During the exercise, the crew was evaluated on the ability to evaluate plant conditions, identify emergency action levels, classify the emergency, make timely notifications to offsite agencies, evaluate radiation information and perform dose assessments, and recommend appropriate protective actions. The only performance weakness identified was the use of an existing default release default time. The licensee issued a Suggestion Occurrence Solution to evaluate the default values used in dose projections.
- IR 50-483/2000-04 dated February 10, 2000: Inspection walkthroughs were conducted with two control room crews using a dynamic simulation on the control room simulator. Each walkthrough lasted approximately 2 hours and was followed by a licensee critique. During the scenarios, each crew was evaluated on the ability to evaluate plant conditions, identify emergency action levels, classify the emergency, make timely notifications to offsite agencies, evaluate radiation information and perform dose assessments, and recommend appropriate protective actions. The only significant weaknesses identified were (1) a protective action recommendation was transmitted that was not approved by the shift supervisor, and (2) a second protective action recommendation was communicated to a single county, but not to all offsite authorities. The crew performance was characterized as weak by the licensee and a Suggestion Occurrence Solution was initiated by the licensee to evaluate corrective actions.

The above IRs indicate that the key functional tasks of evaluating plant conditions, emergency classification, declaration, notification, dose assessment, and protective action recommendations can be performed with the existing on-shift emergency staff for up to about two hours, which is significantly beyond the extended augmentation time requested by the licensee. In addition, the licensee has more on-shift ERO personnel than is indicated in Table B-1 of NUREG-0654 and the RERP allows the EC to call in any additional ERO personnel that are needed without initiating the mobilization of the ERFs. Based on this, the staff concludes that the licensee meets the criterion.

### (3) Population Density and Remote Site

In its application, the licensee described the Callaway site location. The site is located approximately 10 miles southeast of Fulton, Missouri, in Callaway County at the junction of County Road Routes O and CC. A map of central Missouri is included in the application. The surrounding land is used for farming where the terrain is flat enough for cultivation and has suitable soil for farming. Such land is stated to generally lie on gently rolling terrain with flood plains and pastureland comprising 39 percent of the land within 5 miles of the site. The remainder of the land lies in slopes occupied in forests and unsuitable for farming that comprise about 60 percent of the land within 5 miles of the site.

The area within 10 miles of the site is stated to be rural and includes portions of Callaway, Osage, Gasconade, and Montgomery Counties. In the application, the licensee provided the following estimates of population totals out to 10 miles from the site:

From 0 to 2 miles	77
From 2 to 5 miles	711
From 5 to 10 miles	<u>9441</u>
TOTAL	10229

The licensee stated that their estimate is consistent with projections based on the 1990 Census Data using the Landview III software developed by the U.S. Census Bureau. The year 2000 is not yet available. The licensee further stated that there have been no major developments within 2 miles of the plant in the past 10 years.

Based on the population numbers presented by the licensee, the staff concludes that the population out to 2 miles of the plant is small enough so that prompt protective actions could be taken by the appropriate offsite authorities in a timely manner when informed of plant conditions by the control room staff prior to full augmentation of the on-shift staff and prior to the licensee's ERFs becoming operational. Based on this, the staff concludes that the licensee meets this criterion. As a comparison, in the staff's evaluation accepting the proposed increase in augmentation times for Grand Gulf Nuclear Station (GGNS), in the staff's letter of September 29, 2000, the population out to 2 miles for GGNS is 94 people, which is greater than the above number for Callaway.

#### (4) Increase the Emergency Response Organization Pool

In its application, the licensee stated that extended augmentation time of no more than 75 minutes for the off hours was to allow a greater fraction of the plant staff to be able to participate in the ERO as well as to enhance personnel safety when responding to the plant emergency. The licensee does not have help from State or local authorities to assist the ERO responders in driving to the site faster. The licensee stated that, since the plant was licensed, plant staff has moved away from the site and this has reduced the fraction of plant staff that can realistically meet the response time goals of 30-45 minutes in RERP Table 5-2 for the rapid responders for the off hours. The licensee stated that, over the past several years, the 30-45 minute response times have proven to be unrealistic due to the remoteness of the site and the changing demographics of where the plant's staff lives away from the site.

The licensee stated that the primary criteria for selection of personnel for positions in the ERO has become the location of the person's residence and not the individuals' position within the organization or their experience. Also, the licensee further explained that it is finding it harder to fill vacancies within the ERO and the burden on those individuals that happen to live in closer proximity to the site is having a negative impact on employee morale when recruiting personnel for the vacant positions. Therefore, the licensee stated that it has become more and more difficult for it to fill vacancies in the ERO with experienced personnel who are able to meet the existing response time goals.

The population centers surrounding the site where plant staff live are Columbia, Fulton, Hermann, Holts Summit, and Jefferson City, Missouri. The licensee provided the following description on personnel traveling from these centers:

- Columbia, Missouri, is about 40 miles northwest of the plant. The driving time to the site, assuming daylight, light traffic, and good weather, is about 50 to 65 minutes. About 25 percent of the eligible ERO personnel reside in the Columbia area.
- Fulton, Missouri, is about 12 miles from the plant. The driving time to the site, assuming daylight, light traffic, and good weather, is about 20 to 25 minutes; however, the main access road has numerous hills and curves. About 35 percent of the eligible ERO personnel reside in the Fulton area.
- Hermann, Missouri, is about 30 miles southeast of the site. The driving time, assuming daylight, light traffic, and good weather, is about 30 to 45 minutes. The main routes to the site are State Highways 19 and 94 which are 2-lane rural roads, and County Route CC. About 1 percent of eligible ERO personnel reside in the Hermann area.
- Holts Summit, Missouri, is about 30 miles southwest of the site. The driving time, assuming daylight, light traffic, and good weather, is about 40 to 45 minutes. The main routes to the site are U.S. Highway 54 to Fulton, and County Routes O and CC. About 4 percent of eligible ERO personnel reside in the Holts Summit area.
- Jefferson City, Missouri, is about 30 miles southwest of the site. The driving time, assuming daylight, light traffic, and good weather, is about 40 to 50 minutes. The main routes to the site are U.S. Highway 54, State Highway 94, and County Route CC. About 31 percent of eligible ERO personnel reside in Hermann.

The above population centers account for 96 percent of the eligible ERO personnel and the centers of Columbia, Fulton, and Jefferson City account for the greater majority of eligible ERO personnel.

The licensee stated in its supplemental letter that, at this time, it has 42 personnel filling their management rapid responder positions. The following management personnel live 45 minutes or greater from Callaway and are filling non-rapid responder positions in the ERO:

- 10 licensed senior reactor operators
- 5 senior management
- 6 supervising engineers
- 21 senior engineers
- 5 health physics management/dose assessment qualified
- 6 management staff - EOF communicator/offsite liaison qualified

The licensee stated that these 53 personnel could be rapid responders with the proposed response times. The licensee further added that for non-management personnel, the proposed extended response times for rapid responders during off hours would add an additional 19 individuals to the ERO pool.

In summary, the licensee stated that, at the present time there are 78 (42 management and 36 non-management ) personnel filling the rapid responders position of RERP Table 5-2. With the proposed response time goals, an additional 72 (53 management and 19 non-management) personnel could be added for these positions. Therefore, the licensee concluded that the proposed response time goals will increase the ERO pool for these positions by about 92 percent.

There is no change to the pool of later responders in RERP Table 5-2 (i.e., the 60-75 minute responders) because the proposed response time goals do not extend the response time goals for the later responders.

Therefore, by extending the ERF augmentation times, the licensee will be able to draw upon a larger pool of personnel for the ERO which would facilitate having the necessary persons with the appropriate skills to respond to the emergency. This should increase the effectiveness of the ERO and compensate for the extended response times of 75 minutes for rapid responders during off hours because the licensee will be able to draw on more resources and the primary criteria for selection of personnel for positions in the ERO will not be the location of the person's residence. For the licensee's core hours, the proposed response time goals are less than allowed by the current RERP Table 5-2. Based on this, the staff concludes that the licensee meets the criterion.

#### (5) Early Activation of Emergency Response Facilities

Section 5.2 of the RERP states that the mobilization of the ERFs is initiated at the Alert (or higher) emergency declaration. This is earlier than the staff's guidance for mobilizing ERFs, which is at the Site Area Emergency. Also, the RERP allows the EC to call in ERO personnel as they are needed without mobilizing the ERFs (TSC and EOF), and the licensee has also proposed to decrease the time for the ERFs to become activated (see Section 4.2) to as soon as practical with separate goals for off hours and normal working hours. The ERFs become operational when all the emergency functions are transferred from the control room to the ERFs. Based on this, the staff concludes that the licensee meets this criterion.

Based on the above evaluation, the staff concludes that extending the response time goals for off hours in RERP Table 5-2 for augmenting the on-shift emergency staff to increase the pool of eligible ERO personnel do not decrease the effectiveness of the RERP and meets the criteria for showing the augmentation times meet planning standard 50.47(b)(2) for timely augmentation of the ERFs. Because the proposed response time goals for normal hours in RERP Table 5-2 are less than the current goals, the proposed response time goals for normal hours also do not decrease the effectiveness of the RERP and meet planning standard 50.47(b)(2) for timely augmentation of the ERFs.

#### 4.2 Add Activation Time Goal

The licensee has proposed to revise Footnote "+" of RERP Table 5-2. The proposed revision adds the following phrase: "Facility activation will be done as soon as practical. Facility Activation Goals for the TSC and EOF are 90 minutes for off hours and 30 minutes during normal working (assumes 15 minutes from arrival at the facility)." The 90 and 30 minutes would be after the declaration of an Alert (or higher) classification, when mobilization of the ERFs

begins. The proposed change will add the goal of activating the ERFs within 15 minutes of the ERO personnel in the minimum positions arriving at the ERFs. The current RERP does not have such a goal.

Because the proposed revision to Footnote "+" to RERP Table 5-1 adds a new requirement to the RERP, the staff concludes that the proposed goal to activate the ERFs within 90 minutes during off hours and 30 minutes during normal hours of declaration of an Alert (or higher classification) do not decrease the effectiveness of the RERP and meet planning standard 50.47(b)(2) for timely augmentation of the ERFs.

#### 4.3 Identify Minimum Staff for Activating ERFs

The licensee has proposed to add a new Footnote "+" to RERP Table 5-2. The footnote identifies the minimum staff listed in RERP Table 5-2 that must be present in the ERFs to declare the ERFs activated. The licensee has listed the footnote with the following emergency positions: Emergency Coordinator (TSC), TSC Communicator (TSC), Health Physics Coordinator (TSC), Technical Assistance Coordinator (TSC), Recovery Manager (EOF), Dose Assessment Coordinator (EOF), and Off Site Liaison Coordinator (EOF). These 7 individuals are all rapid responders in RERP Table 5-2. The licensee stated that these are the current minimum staff needed to activate the ERFs and the ERFs have been operated in that manner. Therefore, the staff concludes that Footnote "+" is a clarification to the RERP and is not a change to the RERP.

#### 5.0 CONCLUSION

Based on the above evaluation and the staff's review of the licensee's application, the staff concludes that the licensee's proposed changes to RERP Table 5-2 do not decrease the effectiveness of the RERP, add requirements to the RERP, clarify the RERP, meet planning standard 50.47(b)(2), and are consistent with the planning standards of 10 CFR 50.47(b) and the requirements in Appendix E of 10 CFR Part 50. Based on this, the staff concludes that the proposed changes are acceptable.

Principal Contributor: Jack Donohew

Date: March 1, 2001