

July 7, 1998

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

SUBJECT: NOTICE OF CONSIDERATION OF ISSUANCE OF AMENDMENT TO FACILITY
OPERATING LICENSE, PROPOSED NO SIGNIFICANT HAZARDS
CONSIDERATION DETERMINATION, AND OPPORTUNITY FOR HEARING -
CALLAWAY PLANT, UNIT 1 (TAC NO. MA1113)

Dear Mr. Randolph:

Enclosed is a copy of the subject notice for your information. The notice relates to your application for an amendment to Facility Operating License No. NPF-30 dated February 24, 1998, as supplemented by letter dated May 27, 1998, that supports a modification to the Callaway Plant, Unit 1 to increase the storage capacity of the spent fuel pool.

The notice has been forwarded to the Office of the Federal Register for publication.

Sincerely,

Original Signed By

Kristine M. Thomas, Project Manager
Project Directorate IV-2
Division of Reactor Projects III/IV
Office of Nuclear Reactor Regulation

Docket No. 50-483

Enclosure: Notice

cc w/encl: See next page

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Mr. Garry L. Randolph

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July 7, 1998

cc w/encl:

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UNITED STATES NUCLEAR REGULATORY COMMISSIONUNION ELECTRIC COMPANYDOCKET NO. 50-483NOTICE OF CONSIDERATION OF ISSUANCE OF AMENDMENT TO
FACILITY OPERATING LICENSE. PROPOSED NO SIGNIFICANT HAZARDS
CONSIDERATION DETERMINATION, AND OPPORTUNITY FOR A HEARING

The U.S. Nuclear Regulatory Commission (the Commission) is considering issuance of an amendment to Facility Operating License No. NPF-30 issued to Union Electric Company (the licensee) for operation of the Callaway Plant, Unit 1 located in Callaway County, Missouri.

The proposed amendment would support a modification to the plant to increase the storage capacity of the spent fuel pool.

Before issuance of the proposed license amendment, the Commission will have made findings required by the Atomic Energy Act of 1954, as amended (the Act) and the Commission's regulations.

The Commission has made a proposed determination that the amendment request involves no significant hazards consideration. Under the Commission's regulations in 10 CFR 50.92, this means that operation of the facility in accordance with the proposed amendment would not (1) involve a significant increase in the probability or consequences of an accident previously evaluated; or (2) create the possibility of a new or different kind of accident from any accident previously evaluated; or (3) involve a significant reduction in a margin of safety. As required by 10 CFR 50.91(a), the licensee has provided its analysis of the issue of no significant hazards consideration, which is presented below:

1. The proposed change does not involve a significant increase in the probability or consequences of an accident previously evaluated.

In the analysis of the safety issues concerning the expanded pool storage capacity, the following previously postulated accident scenarios have been considered:

- a. A spent fuel assembly drop in the Spent fuel pool
- b. Loss of Spent fuel pool cooling flow
- c. A seismic event
- d. Misloaded fuel assembly

The probability that any of the accidents in the above list can occur is not significantly increased by the modification itself. The probabilities of a seismic event or loss of spent fuel pool cooling flow are not influenced by the proposed changes. The probabilities of accidental fuel assembly drops or misloadings are primarily influenced by the methods used to lift and move these loads. The method of handling loads during normal plant operations is not significantly changed, since the same equipment (i.e., Spent Fuel Handling Machine) and procedures will be used. A new offset handling tool will be required to assess some storage rack cells located adjacent to the pool walls. The grapple mechanism, procedures, and fuel manipulation methods will be very similar to those used by the standard fuel handling tool. Therefore, this tool does not represent a significant change in the methods used to lift or move fuel. Since the methods used to move loads during normal operations remain nearly the same as those used previously, there is no significant increase in the probability of an accident.

During rack removal and installation, all work in the pool area will be controlled and performed in strict accordance with specific written procedures. Any movement of fuel assemblies required to be performed to support the modification (e.g., removal and installation of racks) will be performed in the same manner as during normal refueling operations. Shipping cask movements will not be performed during the modification period.

Accordingly, the proposed modification does not involve a significant increase in the probability of an accident previously evaluated.

The consequences of the previously postulated scenarios for an accidental drop of a fuel assembly in the spent fuel pool have been re-evaluated for the proposed change. The results show that the postulated accident of a fuel assembly striking the top of the storage racks will not distort the racks sufficiently to impair their functionality. The minimum subcriticality margin, K_{eff} less than or

equal to 0.95, will be maintained. The structural damage to the Fuel Building, pool liner, and fuel assembly resulting from a fuel assembly drop striking the pool floor or another assembly located within the racks is primarily dependent on the mass of the falling object and the drop height. Since these two parameters are not changed by the proposed modification, the structural damage to these items remains unchanged. Cycle specific calculations, using core specific parameters continue to ensure that the radiological dose at the exclusion area boundary remain within the limits documented in the Callaway FSAR [Final Safety Analysis Report]. Dose levels will remain "well within" the levels required by 10 CFR 100, paragraph 11, as defined in Section 15.7.4.II.1 of the Standard Review Plan. Thus, the results of the postulated fuel drop accidents remain acceptable and do not represent a significant increase in consequences from any of the previously evaluated accidents that have been reviewed and found acceptable by the NRC.

The consequences of a loss of spent fuel pool cooling have been evaluated and found to have no increase. The concern with this accident is a reduction of spent fuel pool water inventory from bulk pool boiling resulting in uncovering fuel assemblies. This situation would lead to fuel failure and subsequent significant increase in offsite dose. Loss of spent fuel pool cooling at Callaway is mitigated by ensuring that a sufficient time lapse exists between the loss of forced cooling and uncovering fuel. This period of time is compared against a reasonable period to re-establish cooling or supply an alternative water source. Evaluation of this accident usually includes determination of the time to boil. The time allowed for operator actions is much less than the onset of any significant increase in offsite dose, since once boiling begins it would have to continue unchecked until the pool surface was lowered to the point of exposing active fuel. The time to boil represents the onset of loss of pool water inventory and is commonly used as a gage for establishing the comparison of consequences before and after a reracking project. The heat up rate in the Spent fuel pool is a nearly linear function of the fuel decay heat load. The fuel decay heat load will increase subsequent to the proposed changes because of the increase in the number of assemblies. The methodology used in the thermal-hydraulic analysis determined the maximum fuel decay heat loads which are allowed by maintaining the current time allowed for operator actions (i.e., more than two hours to boil during complete loss of forced cooling). In the unlikely event that all pool cooling is lost, sufficient time will still be available subsequent to the proposed changes for the operators to provide alternate means of cooling before the onset of pool boiling. Therefore, the proposed change represents no increase in the consequences of loss of pool cooling.

The consequences of a design basis seismic event are not increased. The consequences of this accident are evaluated on the basis of subsequent fuel damage or compromise of the fuel storage or building configurations leading to radiological or criticality concerns. The new racks have been analyzed in their new configuration and found safe during seismic motion. Fuel has been determined to remain intact and the storage racks maintain the fuel and fixed

poison configurations subsequent to a seismic event. The structural capability of the pool and liner will not be exceeded under the appropriate combinations of dead weight, thermal, and seismic loads. The Fuel Building structure will remain intact during a seismic event and will continue to adequately support and protect the fuel racks, storage array, and pool moderator/coolant. Thus, the consequences of a seismic event are not increased.

This rerack amendment does not involve an increase in fuel enrichment or burnup levels and does not alter the source term.

Fuel misloading accidents were previously postulated occurrences. The consequence of this type of accident has been analyzed for the worst possible storage configuration subsequent to the proposed modification and the consequences were found to be acceptable because the reactivity in the spent fuel pool remained below 0.95. After the proposed modification, the worst case postulated accident condition, for the MZTR configuration, occurs when a fresh fuel assembly of the highest possible enrichment is inadvertently loaded into a Region 2 storage cell. Further, after the proposed modification, the worst case postulated accident condition, for the checkerboard configuration, occurs when a fresh fuel assembly of the highest possible enrichment is inadvertently loaded into an empty storage cell. In both postulated accident scenarios, credit is allowed for soluble boron in the water, and the spent fuel pool reactivity is maintained below 0.95. Therefore, there is no increase in consequences due to the modification.

Therefore, it is concluded that the proposed changes do not significantly increase the probability or consequences of any accident previously evaluated.

2. The proposed change does not create the possibility of a new or different kind of accident from any accident previously evaluated.

To assess the possibility of new or different kind of accidents, a list of the important parameters required to ensure safe fuel storage was established. Safe fuel storage is defined here as providing an environment which would not present any significant threats to workers or the general public. In other words, meeting the requirements of 10 CFR 100 and 10 CFR 20. Any new events which would modify these parameters sufficiently to place them outside of the boundaries analyzed for normal conditions and/or outside of the boundaries previously considered for accidents would be considered a new or different accident. The criticality and radiological safety evaluations were reviewed to establish the list of important parameters. The fuel configuration and the existence of the moderator/coolant were identified as the only two parameters which were important to safe fuel storage. Significant modification of these two parameters represents the only possibility of an unsafe storage condition. Once the two important parameters were established, an additional step was taken to determine what events (which were not previously considered) could result in

changes to the storage configuration or moderator/coolant presence during or subsequent to the proposed changes. This process was adopted to ensure that the possibility of any new or different accident scenario or event would be identified.

Due to the proposed changes, an accidental drop of a rack module during construction activity in the pool was considered as the only event which might represent a new or different kind of accident.

A construction accident resulting in a rack drop is an unlikely event. A new temporary hoist and rack lifting rig will be introduced to lift and suspend the racks from the bridge of the Cask Handling Crane. These items have been designed in accordance with the requirements of NUREG-0612 and ANSI N14.6. The postulated rack drop event is commonly referred to as a "heavy load drop" over the pools. Heavy loads will not be allowed to travel over any racks containing fuel assemblies. The danger represented by this event is that the racks will drop to the pool floor and the pool structure will be compromised leading to loss of moderator/coolant, which is one of the two important parameters identified above. However, although the analysis of this event has been performed and shown to be acceptable, the question of a new or different type of event is answered by determining whether heavy load drops over the pool have been considered previously. The postulated drop of a pool gate was previously evaluated and represents a similar heavy load drop consideration. All movements of heavy loads over the pool will be in accordance with the objectives of the Union Electric Company, NRC approved submittals in response to NUREG-0612. Therefore, the rack drop does not represent a new or different kind of accident.

The proposed change does not alter the operating requirements of the plant or of the equipment credited in the mitigation of the design basis accidents. The proposed change does not affect any of the important parameters required to ensure safe fuel storage. Therefore, the potential for a new or previously unanalyzed accident is not created.

3. The proposed change does not involve a significant reduction in a margin of safety.

The function of the spent fuel pool is to store the fuel assemblies in a subcritical and coolable configuration through all environmental and abnormal loadings, such as an earthquake or fuel assembly drop. The new rack design must meet all applicable requirements for safe storage and be functionally compatible with the spent fuel pool.

UE has addressed the safety issues related to the expanded pool storage capacity in the following areas:

1. Material, mechanical and structural considerations
2. Nuclear criticality
3. Thermal-hydraulic and pool cooling

The mechanical, material, and structural designs of the new racks have been reviewed in accordance with the applicable provisions of the NRC Guidance entitled, "Review and Acceptance of Spent Fuel Storage and Handling Applications". The rack materials used are compatible with the spent fuel assemblies and the spent fuel pool environment. The design of the new racks preserves the proper margin of safety during abnormal loads such as a dropped assembly and tensile loads from a stuck assembly. It has been shown that such loads will not invalidate the mechanical design and material selection to safely store fuel in a coolable and subcritical configuration.

The methodology used in the criticality analysis of the expanded Spent fuel pool meets the appropriate NRC guidelines and the ANSI standards (GDC 62, NUREG 0800, Section 9.1.2, the OT Position for Review and Acceptance of Spent Fuel Storage and Handling Applications, Reg. Guide 1.13, and ANSI ANS 8.17). The margin of safety for subcriticality is maintained by having the neutron multiplication factor equal to, or less than 0.95 under all accident conditions, including uncertainties. This criterion is the same as that used previously to establish criticality safety evaluation acceptance and remains satisfied for all analyzed accidents. Therefore, the accepted margin of safety remains the same.

The thermal-hydraulic and cooling evaluation of the pool demonstrated that the pool can be maintained below the specified thermal limits under the conditions of the maximum heat load and during all credible accident sequences and seismic events. The bulk pool temperature will not exceed 207 °F during an assumed loss of all cooling for up to two hours. Bulk pool boiling will not occur, nor will fuel cladding experience DNB [departure from nucleate boiling] or excessive thermal stresses. The fuel will not undergo any significant heat up after an accidental drop of fuel assembly on top of the rack blocking the flow path. A loss of cooling to the pool will allow sufficient time (2 hours) for the operators to intervene and line up alternate cooling paths and the means of inventory make-up before the onset of pool boiling. Therefore the allowed operator response time remains unchanged from the previous design basis. In the unlikely event that all pool cooling is lost coincident with the completion of a full core discharge, sufficient time will still be available, subsequent to the proposed changes, for the operators to provide alternate means of cooling before the onset of the bulk pool boiling. Therefore, the accepted margin of safety remains the same.

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

The NRC staff has reviewed the licensee's analysis and, based on this review, it appears that the three standards of 10 CFR 50.92(c) are satisfied. Therefore, the NRC staff proposes to determine that the amendment request involves no significant hazards consideration.

The Commission is seeking public comments on this proposed determination. Any comments received within 30 days after the date of publication of this notice will be considered in making any final determination.

Normally, the Commission will not issue the amendment until the expiration of the 30-day notice period. However, should circumstances change during the notice period such that failure to act in a timely way would result, for example, in derating or shutdown of the facility, the Commission may issue the license amendment before the expiration of the 30-day notice period, provided that its final determination is that the amendment involves no significant hazards consideration. The final determination will consider all public and State comments received. Should the Commission take this action, it will publish in the FEDERAL REGISTER a notice of issuance and provide for opportunity for a hearing after issuance. The Commission expects that the need to take this action will occur very infrequently.

Written comments may be submitted by mail to the Chief, Rules and Directives Branch, Division of Administrative Services, Office of Administration, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, and should cite the publication date and page number of this FEDERAL REGISTER notice. Written comments may also be delivered to Room 6D59, Two White Flint North, 11545 Rockville Pike, Rockville, Maryland, from 7:30 a.m. to 4:15 p.m. Federal workdays. Copies of written comments received may be examined at the NRC Public Document Room, the Gelman Building, 2120 L Street, NW., Washington, DC.

The filing of requests for hearing and petitions for leave to intervene is discussed below.

By August 12, 1998, the licensee may file a request for a hearing with respect to issuance of the amendment to the subject facility operating license and any person whose interest may be affected by this proceeding and who wishes to participate as a party in the proceeding must file a written request for a hearing and a petition for leave to intervene. Requests for a hearing and a petition for leave to intervene shall be filed in accordance with the Commission's "Rules of Practice for Domestic Licensing Proceedings" in 10 CFR Part 2. Interested persons should consult a current copy of 10 CFR 2.714 which is available at the Commission's Public Document Room, the Gelman Building, 2120 L Street, NW., Washington, DC, and at the local public document room located at the Callaway County Public Library, 710 Court Street, Fulton, Missouri 65251. If a request for a hearing or petition for leave to intervene is filed by the above date, the Commission or an Atomic Safety and Licensing Board, designated by the Commission or by the Chairman of the Atomic Safety and Licensing Board Panel, will rule on the request and/or petition; and the Secretary or the designated Atomic Safety and Licensing Board will issue a notice of hearing or an appropriate order.

As required by 10 CFR 2.714, a petition for leave to intervene shall set forth with particularity the interest of the petitioner in the proceeding, and how that interest may be affected by the results of the proceeding. The petition should specifically explain the reasons why intervention should be permitted with particular reference to the following factors: (1) the nature of the petitioner's right under the Act to be made party to the proceeding; (2) the nature and extent of the petitioner's property, financial, or other interest in the proceeding; and (3) the possible effect of any order which may be entered in the proceeding on the petitioner's interest. The petition should also identify the specific aspect(s) of the subject matter of the proceeding as

to which petitioner wishes to intervene. Any person who has filed a petition for leave to intervene or who has been admitted as a party may amend the petition without requesting leave of the Board up to 15 days prior to the first prehearing conference scheduled in the proceeding, but such an amended petition must satisfy the specificity requirements described above.

Not later than 15 days prior to the first prehearing conference scheduled in the proceeding, a petitioner shall file a supplement to the petition to intervene which must include a list of the contentions which are sought to be litigated in the matter. Each contention must consist of a specific statement of the issue of law or fact to be raised or controverted. In addition, the petitioner shall provide a brief explanation of the bases of the contention and a concise statement of the alleged facts or expert opinion which support the contention and on which the petitioner intends to rely in proving the contention at the hearing. The petitioner must also provide references to those specific sources and documents of which the petitioner is aware and on which the petitioner intends to rely to establish those facts or expert opinion. Petitioner must provide sufficient information to show that a genuine dispute exists with the applicant on a material issue of law or fact. Contentions shall be limited to matters within the scope of the amendment under consideration. The contention must be one which, if proven, would entitle the petitioner to relief. A petitioner who fails to file such a supplement which satisfies these requirements with respect to at least one contention will not be permitted to participate as a party.

Those permitted to intervene become parties to the proceeding, subject to any limitations in the order granting leave to intervene, and have the opportunity to participate fully in the conduct of the hearing, including the opportunity to present evidence and cross-examine witnesses.

If a hearing is requested, the Commission will make a final determination on the issue of no significant hazards consideration. The final determination will serve to decide when the hearing is held.

If the final determination is that the amendment request involves no significant hazards consideration, the Commission may issue the amendment and make it immediately effective, notwithstanding the request for a hearing. Any hearing held would take place after issuance of the amendment.

If the final determination is that the amendment request involves a significant hazards consideration, any hearing held would take place before the issuance of any amendment.

A request for a hearing or a petition for leave to intervene must be filed with the Secretary of the Commission, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, Attention: Rulemakings and Adjudications Staff, or may be delivered to the Commission's Public Document Room, the Gelman Building, 2120 L Street, NW., Washington, DC, by the above date. A copy of the petition should also be sent to the Office of the General Counsel, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, and to John O'Neill, Esq., Shaw, Pittman, Potts and Trowbridge, 2300 N Street, N.W., Washington, D.C. 20037, attorney for the licensee.

Nontimely filings of petitions for leave to intervene, amended petitions, supplemental petitions and/or requests for hearing will not be entertained absent a determination by the Commission, the presiding officer or the presiding Atomic Safety and Licensing Board that the petition and/or request should be granted based upon a balancing of the factors specified in 10 CFR 2.714(a)(1)(i)-(v) and 2.714(d).

The Commission hereby provides notice that this is a proceeding on an application for a license amendment falling within the scope of Section 134 of the Nuclear Waste Policy Act of 1982 (NWPA), 42 U.S.C. 10154. Under Section 134 of the NWPA, the Commission, at the request of any party to the proceeding, must use hybrid hearing procedures with respect to "any matter which the Commission determines to be in controversy among the parties." The hybrid procedures in Section 134 provide for oral argument on matters in controversy, preceded by discovery under the Commission's rules, and the designation, following argument, of only those factual issues that involve a genuine and substantial dispute, together with any remaining questions of law, to be resolved in an adjudicatory hearing. Actual adjudicatory hearings are to be held on only those issues found to meet the criteria of Section 134 and set for hearing after oral argument.

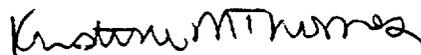
The Commission's rules implementing Section 134 of the NWPA are found in 10 CFR Part 2, Subpart K, "Hybrid Hearing Procedures for Expansion of Spent Nuclear Fuel Storage Capacity at Civilian Nuclear Power Reactors" (published at 50 FR 41670, October 15, 1985) to 10 CFR 2.1101 et seq. Under those rules, any party to the proceeding may invoke the hybrid hearing procedures by filing with the presiding officer a written request for oral argument under 10 CFR 2.1109. To be timely, the request must be filed within 10 days of an order granting a request for hearing or petition to intervene. (As outlined above, the Commission's rules in 10 CFR Part 2, Subpart G, and 2.714 in particular, continue to govern the filing of requests for a hearing or petitions to intervene, as well as the admission of contentions.) The presiding officer shall grant a timely request for oral argument. The presiding officer may grant an untimely request for oral argument only upon showing of good cause by the requesting party for the failure to file on time and after providing the other parties an opportunity to respond to the

untimely request. If the presiding officer grants a request for oral argument, any hearing held on the application shall be conducted in accordance with the hybrid hearing procedures. In essence, those procedures limit the time available for discovery and require that an oral argument be held to determine whether any contentions must be resolved in adjudicatory hearing. If no party to the proceedings requests oral argument, or if all untimely requests for oral argument are denied, then the usual procedures in 10 CFR Part 2, Subpart G, apply.

For further details with respect to this action, see the application for amendment dated March 20, 1998, as supplemented by letter dated May 28, 1998, which is available for public inspection at the Commission's Public Document Room, the Gelman Building, 2120 L Street, NW., Washington, DC, and at the local public document room located at the Callaway County Public Library, 710 Court Street, Fulton, Missouri 65251.

Dated at Rockville, Maryland, this 7th day of July 1998.

FOR THE NUCLEAR REGULATORY COMMISSION



Kristine M. Thomas, Project Manager
Project Directorate IV-2
Division of Reactor Projects III/IV
Office of Nuclear Reactor Regulation