

December 21, 2004

Mr. Christopher M. Crane, President
and Chief Executive Officer
AmerGen Energy Company, LLC
4300 Winfield Road
Warrenville, Illinois 60555

SUBJECT: CLINTON POWER STATION, UNIT 1 - REQUEST FOR AMENDMENT RE:
SPENT FUEL STORAGE EXPANSION (TAC NO. MC4202)

Dear Mr. Crane:

The Commission has requested the Office of the Federal Register to publish the enclosed "Notice of Consideration of Issuance of Amendment to Facility Operating License, Proposed No Significant Hazards Consideration Determination, and Opportunity for Hearing." This notice relates to your application for amendment dated August 18, 2004, which proposes to revise Technical Specification 4.3, "Fuel Storage," to reflect the addition of fuel storage capacity in the fuel cask storage pool and increased fuel storage capacity in the spent fuel pool.

Sincerely,

/RA/

Kahtan N. Jabbour, Project Manager, Section 2
Project Directorate III
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket No. 50-461

Enclosure: As Stated

cc w/encl: see next page

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UNITED STATES NUCLEAR REGULATORY COMMISSION

AMERGEN ENERGY COMPANY, LLC.

DOCKET NO. 50-461

NOTICE 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-62, issued to AmerGen Energy Company, LLC, for operation of the Clinton Power Station, Unit 1 (CPS) located in DeWitt County, Illinois.

The proposed amendment would change Technical Specification (TS) 4.3, "Fuel Storage," to reflect the addition of fuel storage capacity in the fuel cask storage pool and increased fuel storage capacity in 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 Title 10 of the *Code of Federal Regulations* (10 CFR), Section 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. Does the proposed amendment involve a significant increase in the probability or consequences of an accident previously evaluated?

Response: No.

The proposed change involves revising CPS TS 4.3, "Fuel Storage," to reflect the increased storage capacity of the spent fuel pool due to the installation of higher density storage racks and the addition of fuel storage capacity in the fuel cask storage pool.

The method of handling fuel is not significantly changed since the same equipment and procedures will be used. During spent fuel rack removal and installation, all work in the spent fuel pool and cask storage pool area will be controlled and performed in strict accordance with specific written guidance. 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. There is no change to the methods or equipment to be used in moving fuel casks. Expanding the spent fuel storage capacity does not have a significant impact on the frequency of occurrence for any accident previously evaluated. Therefore, this change will not significantly increase the probability of occurrence of any event previously analyzed.

The consequences of the dropped spent fuel assembly in the spent fuel pool have been evaluated for the proposed change. The results show that the postulated drop of a spent fuel assembly striking the top of the spent fuel storage racks will not distort the racks sufficiently to impair their functionality. The minimum subcriticality margin (i.e., neutron multiplication factor (K_{eff}) less than or equal to 0.95) will be maintained. The structural damage to the Fuel Building, spent fuel pool liner, and any fuel assembly resulting from a dropped fuel assembly striking the pool floor or another assembly located in the racks is primarily dependent on the mass of the falling object and drop height. Since these two parameters are not changed by the proposed modification, the postulated structural damage to these items remains unchanged. The radiological dose at the exclusion area boundary will not be increased since no changes are being made to in-core hold time or burn-up as a result of the proposed amendment.

The consequences of a loss of spent fuel pool cooling were evaluated and found to not involve a significant increase as a result of the proposed changes. The concern with this event is a reduction of spent fuel pool water inventory from bulk boiling resulting in uncovering fuel assemblies. This situation could lead to fuel failure and subsequent significant increase in offsite dose. Loss of spent fuel pool cooling at CPS 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 reestablish cooling or supply an alternative water source. Evaluation of this event includes determination of the time to boil. This time period 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 heatup 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 thermal-hydraulic analysis determined that the minimum time to boil is more than three hours subsequent to complete loss of forced cooling and a minimum of 24 hours between loss of forced cooling and a drop of water level to within 10 feet of the top of the racks. 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 water shielding above the top of the racks falls below 10 feet. The supporting analyses have been confirmed to be bounding for all spent fuel pool loading configurations.

The consequences of a design basis seismic event are not increased. The consequences of this event were 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 were found to be 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 spent fuel storage racks, storage array, and pool moderator/coolant.

A fuel cask drop accident was previously evaluated as described in the CPS Updated Safety Analysis Report (USAR) Section 15.7.5. Administrative controls will be implemented to ensure that fuel will be removed from storage racks located within the cask storage pool prior to any fuel cask being moved in this area. The presence of any empty racks in this area will not adversely affect the previously evaluated cask drop scenarios, since any impacted empty racks will tend to absorb the kinetic energy of the dropped cask and thus reduce the impact load and corresponding damage. The thin walled rack cell material poses significantly less threat to puncturing the cask than impact to the floor of the pool area. Thus, the results of the previously evaluated cask drop accident remain unchanged.

Therefore, the proposed change does not result in a significant increase in the probability or consequences of a previously evaluated accident.

In summary, the proposed change does not result in a significant increase in the consequences of a previously evaluated accident.

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

Response: No.

The proposed change involves revising CPS TS 4.3, "Fuel Storage," to reflect the increased storage capacity of the spent fuel pool as a result of the installation of higher density storage racks and addition of fuel storage capacity in the fuel cask storage pool. Due to the proposed changes, an accidental drop of a rack module during construction activity in the pool was considered as the only event that might represent a new or different kind of accident.

A construction accident of a rack dropping onto stored spent fuel or the pool floor liner is not a postulated event due to the defense-in-depth approach to be taken. A new temporary crane, hoist, and rack lifting rig will be introduced to remove the existing racks and install the new racks. These temporary lift items have been designed to meet the requirements of NUREG-0612, "Control of Heavy Loads at Nuclear Power Plants, Resolution of Generic Technical Activity A-6," and ANSI [American National Standards Institute] N14.6, "Standard for Special Lifting Devices for Shipping Containers Weighing 10000 Pounds or More for Nuclear Materials." A rack drop event is considered to be a "heavy load drop" over the pools. Racks will not be allowed to be lifted or to travel over any racks containing new or spent fuel assemblies, thus a rack drop onto fuel is precluded. A rack drop to the pool liner is also precluded since all of the lifting components, except for the temporary crane, either provide redundancy in load path or are designed with safety margins greater than a factor of ten (10). The Fuel Building Crane will be used to lower racks into the pool and place racks within the range of accessibility and to remove racks from the spent fuel pool. The temporary crane will be used to lift racks from the pool floor and move the racks horizontally with a limited lift height above the pool floor. All movements of heavy loads over the pool will comply with the applicable administrative controls and guidelines (i.e. plant procedures, NUREG-0612, etc.). A rack drop would not alter the storage configuration or moderator/coolant presence. 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 with 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 proposed change does not create the possibility of a new or different kind of accident from any previously evaluated.

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

Response: No

The function of the spent fuel pool and fuel cask storage 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 and fuel cask storage pool.

The mechanical, material, and structural designs of the new racks have been reviewed in accordance with the applicable provisions of the NRC [Nuclear Regulatory Commission] Guidance entitled, "OT Positions of Review and Acceptance of Spent Fuel Storage and Handling Applications," provided as an enclosure to Generic Letter 78-11. The rack materials used are compatible with the spent fuel assemblies and the spent fuel pool environment. The fixed neutron absorber (i.e. Metamic) has been demonstrated to be acceptable for dry and wet storage applications on a generic basis. In addition, the NRC has approved Metamic for use in both wet storage and dry storage applications. 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. The margin of safety for subcriticality is maintained by having k_{eff} equal to or less than 0.95 under all normal storage, fuel handling, and accident conditions, including uncertainties.

The criterion of having k_{eff} equal to or less than 0.95 during storage or fuel movement is the same as that used previously to establish criticality safety evaluation acceptance. Therefore, the accepted margin of safety remains the same.

The thermal-hydraulic and cooling evaluation of the spent fuel pool demonstrated that the pool could 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 spent fuel pool temperature will not exceed 150 °F during the worst single failure of a cooling pump. The maximum local water temperature in the hot channel will remain below the boiling point. The fuel will not undergo any significant heat up after an accidental drop of a fuel assembly on top of the rack blocking the flow path. A loss of cooling to the pool will allow sufficient time (i.e. 24 hours) for the operators to intervene and line up alternate cooling paths and the means of inventory make-up before the water shielding above the top of the racks falls below 10 feet. The thermal limits specified for the evaluations performed to support the proposed change are the same as those that were used in the previous evaluations.

Therefore, the proposed change does not involve a significant reduction in a 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 60 days after the date of publication of this notice. The Commission may issue the license amendment before expiration of the 60-day period provided that its final determination is that the amendment involves no significant hazards consideration. In addition, the Commission may issue the amendment prior to the expiration of the 30-day comment period should circumstances change during the 30-day comment period such that failure to act in a timely way would result, for example in derating or shutdown of the facility. Should the Commission take

action prior to the expiration of either the comment period or the notice period, it will publish in the *Federal Register* a notice of issuance. Should the Commission make a final No Significant Hazards Consideration Determination, any hearing will take place 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. Documents may be examined, and/or copied for a fee, at the NRC's Public Document Room, located at One White Flint North, Public File Area O-1 F21, 11555 Rockville Pike (first floor), Rockville, Maryland.

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

Within 60 days after the date of publication of this notice, 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 2.309, which is available at the Commission's PDR, located at One White Flint North, Public File Area O-1F21, 11555 Rockville Pike (first floor), Rockville, Maryland. Publicly available records will be accessible from the Agencywide Documents Access and Management System's (ADAMS) Public Electronic Reading Room on the Internet at the NRC Web site, <http://www.nrc.gov/reading-rm/doc-collections/cfr/>. If a request for a hearing or petition for leave to intervene is

filed by the above date, the Commission or a presiding officer designated by the Commission or by the Chief Administrative Judge of the Atomic Safety and Licensing Board Panel, will rule on the request and/or petition; and the Secretary or the Chief Administrative Judge of the Atomic Safety and Licensing Board will issue a notice of a hearing or an appropriate order.

As required by 10 CFR 2.309, 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 general requirements: 1) the name, address and telephone number of the requestor or petitioner; 2) the nature of the requestor's/petitioner's right under the Act to be made a party to the proceeding; 3) the nature and extent of the requestor's/petitioner's property, financial, or other interest in the proceeding; and 4) the possible effect of any decision or order which may be entered in the proceeding on the requestors/petitioner's interest. The petition must also identify the specific contentions which the petitioner/requestor seeks to have litigated at the proceeding.

Each contention must consist of a specific statement of the issue of law or fact to be raised or controverted. In addition, the petitioner/requestor shall provide a brief explanation of the bases for 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/requestor 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. The petition must include 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/requestor who fails to satisfy 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.

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.

Nontimely requests and/or petitions and contentions will not be entertained absent a determination by the Commission or the presiding officer of the Atomic Safety and Licensing Board that the petition, request and/or the contentions should be granted based on a balancing of the factors specified in 10 CFR 2.309(a)(1)(i)-(viii).

A request for a hearing or a petition for leave to intervene must be filed by: 1) first class mail addressed to the Office of the Secretary of the Commission, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, Attention: Rulemaking and Adjudications Staff; 2) courier, express mail, and expedited delivery services: Office of the Secretary, Sixteenth Floor, One White Flint North, 11555 Rockville Pike, Rockville, Maryland, 20852, Attention: Rulemaking and Adjudications Staff; 3) E-mail addressed to the Office of the Secretary, U.S. Nuclear Regulatory Commission, HEARINGDOCKET@NRC.GOV; or 4) facsimile transmission addressed to the Office of the Secretary, U.S. Nuclear Regulatory Commission, Washington, DC, Attention: Rulemakings and Adjudications Staff at (301) 415-1101, verification number is

(301) 415-1966. A copy of the request for hearing and petition for leave to intervene should also be sent to the Office of the General Counsel, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, and it is requested that copies be transmitted either by means of facsimile transmission to 301-415-3725 or by email to OGCMailCenter@nrc.gov. A copy of the request for hearing and petition for leave to intervene should also be sent to Mr. Thomas S. O'Neill, Associate General Counsel, Exelon Generation Company, LLC, 4300 Winfield Road, Warrenville, IL 60666, the attorney for the licensee.

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 Fuel Storage Capacity at Civilian Nuclear Power Reactors.” 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 together with a request for hearing/petition to intervene, filed in accordance with 10 CFR 2.309. If it is determined a hearing will be held, the presiding officer must grant a timely request for oral

argument. The presiding officer may grant an untimely request for oral argument only upon a 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 must 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 an adjudicatory hearing. If no party to the proceeding timely requests oral argument, and if all untimely requests for oral argument are denied, then the usual procedures in 10 CFR Part 2, Subpart L apply.

For further details with respect to this action, see the application for amendment dated August 18, 2004, which is available for public inspection at the Commission's PDR, located at One White Flint North, File Public Area O1 F21, 11555 Rockville Pike (first floor), Rockville, Maryland. Publicly available records will be accessible from the Agencywide Documents Access and Management System's (ADAMS) Public Electronic Reading Room on the Internet at the NRC Web site, <http://www.nrc.gov/reading-rm/adams.html>. Persons who do not have access to ADAMS or who encounter problems in accessing the documents located in ADAMS, should contact the NRC PDR Reference staff by telephone at 1-800-397-4209, 301-415-4737, or by e-mail to pdr@nrc.gov.

Dated at Rockville, Maryland, this 21st day of December 2004.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA by G. Dick for K. Jabbour/

Kahtan N. Jabbour, Project Manager, Section 2
Project Directorate III
Division of Licensing Project Management

