March 25, 2005

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

SUBJECT: OYSTER CREEK NUCLEAR GENERATING STATION (OCNGS) - SAFETY EVALUATION RE: PRELIMINARY DECOMMISSIONING COST ESTIMATE AND SPENT FUEL MANAGEMENT PROGRAM (TAC NOS. MC2996 AND MC4994)

Dear Mr. Crane:

The Nuclear Regulatory Commission (NRC) staff has completed reviewing AmerGen Energy Company's (AmerGen) submittals dated April 14, 2004, entitled "Submittal of Preliminary Decommissioning Cost Estimate," June 24, 2004, entitled "Submittal of Preliminary Decommissioning Cost Estimate," and October 29, 2004, entitled "Submittal of Spent Fuel Management Plan." These submittals address how OCNGS will meet the requirements set forth in 10 CFR 50.75(f)(2) and 10 CFR 50.54(bb).

The NRC staff finds that the AmerGen program for the long-term storage of spent fuel and the preliminary cost estimate for OCNGS are adequate, and that AmerGen has provided sufficient details associated with the funding mechanisms. The staff, therefore, concludes that AmerGen's spent fuel management program for OCNGS complies with 10 CFR 50.54(bb) and approves the program on a preliminary basis. In addition, the staff finds that the preliminary decommissioning cost estimate for OCNGS complies with the requirements of 10 CFR 50.75(f)(2) and meets the guidance in NUREG-1713, "Standard Review Plan for Decommissioning Cost Estimates for Nuclear Power Reactors," and Regulatory Guide 1.202, "Standard Format and Content of Decommissioning Cost Estimates for Nuclear Power Reactors." Details of the staff's review are delineated in the enclosed safety evaluation.

Sincerely,

/RA/

Peter S. Tam, Senior Project Manager, Section 1
Project Directorate I
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket No. 50-219

Enclosure: Safety Evaluation

cc w/encl: See next page

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SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

OYSTER CREEK NUCLEAR GENERATING STATION (OCNGS)

SPENT FUEL MANAGEMENT PLAN AND

PRELIMINARY DECOMMISSIONING COST ESTIMATE

DOCKET NO. 50-219

1.0 INTRODUCTION

Pursuant to 10 CFR 50.54(bb), licensees of nuclear power plants that are within 5 years of expiration of their operating license must submit written notification of a spent fuel management and funding program to the Nuclear Regulatory Commission (NRC) for review and preliminary approval. The written notification must discuss the means by which the licensee intends to manage and provide funding for the management of spent fuel until the fuel is transferred to the Department of Energy (DOE) for permanent disposal. In the same time period, the licensee is also required by 10 CFR 50.75(f)(2) to submit a preliminary cost estimate which includes up-to-date assessment of the major factors that could affect the cost to decommission.

To comply with these cited regulations, AmerGen Energy Company, LLC (AmerGen, the licensee) submitted the following documents for OCNGS: (1) April 14, 2004, entitled "Submittal of Preliminary Decommissioning Cost Estimate" (Accession No. ML041130434), (2) June 24, 2004, entitled "Submittal of Preliminary Decommissioning Cost Estimate" (Accession No. ML041840125), and (3) October 29, 2004, entitled "Submittal of Spent Fuel Management Plan" (Accession No. ML043060471). The April 14, 2004, submittal included a detailed discussion of the Spent Fuel Management Plan. The NRC staff's review of the licensee's submitted information follows.

2.0 BACKGROUND

OCNGS is located about 2 miles inland from the shore of Barnegat Bay on the coast of New Jersey. The site is approximately 9 miles south of Toms River, New Jersey, about 50 miles east of Philadelphia, Pennsylvania, and 60 miles south of Newark, New Jersey. OCNGS consists of a single reactor with supporting facilities and currently operates under a full-term operating license at a maximum thermal power level of 1930 Mwth. OCNGS was designed and constructed by General Electric Company. The expiration date of the OCNGS operating license is April 9, 2009.

OCNGS has an independent spent fuel storage installation (ISFSI) operating at the site. AmerGen estimates that DOE will initiate spent fuel receipt in 2015 and it will be completed in 2027. The licensee's estimate is based on the maximum rate at which the fuel is removed

from commercial sites, and the annual capacity at the geologic repository of 3,000 metric tons of uranium. Any delay in the startup of the repository or decrease in the rate of acceptance of the fuel will increase the transfer time and result in fuel remaining on the site longer than initially estimated. The licensee is currently evaluating a scenario to expand the operation of the ISFSI to accommodate the inventory of spent fuel residing in the plant's spent fuel pool at the end of the cooling period.

In its letter of June 24, 2004, the licensee reaffirmed the commitment to seek license renewal for OCNGS. If OCNGS ceases operation in 2009, AmerGen will comply with existing NRC licensing requirements, including the operation and maintenance of the systems and structures needed to support continued operation of the spent fuel pool and ISFSI.

3.0 REGULATORY REQUIREMENTS AND CRITERIA

3.1 Regulatory Requirement for Irradiated Fuel Management

NRC's requirements at 10 CFR 50.54(bb) state:

> For nuclear power reactors licensed by the NRC, the licensee shall, within 2 years following permanent cessation of operation of the reactor or 5 years before expiration of the reactor operating license, whichever comes first, submit written notification to the Commission for its review and preliminary approval of the program by which the licensee intends to manage and provide funding for the management of all irradiated fuel at the reactor following permanent cessation of the reactor until title to the irradiated fuel and possession of the fuel is transferred to the Secretary of Energy for its ultimate disposal in a repository.....

3.2 Criteria for Irradiated Fuel Management

For the NRC to evaluate and provide preliminary approval of the spent fuel management and funding program, the NRC staff would look for and evaluate:

- The estimated cost to isolate the spent fuel pool and fuel handling systems, or the cost to construct an ISFSI or a combination of wet/dry storage;
- The estimated annual cost for the operation of the selected option (wet or dry storage or a combination of the two) until DOE takes possession of the fuel;
- The estimated cost for the preparation, packaging, and shipping of the fuel to DOE;
- The estimated cost to decommission the spent fuel storage facility; and
- A brief discussion of each of the areas identified and the estimated time periods for these activities.

3.3 Regulatory Requirement for Preliminary Decommissioning Cost Estimate

NRC's requirements at 10 CFR 50.75(f)(2) state:

> Each power reactor licensee shall at or about 5 years prior to the projected end of operations submit a preliminary decommissioning cost estimate [herein

referred to as the preliminary cost estimate] which includes an up-to-date assessment of the major factors that could affect the cost to decommission.

10 CFR 50.75(f)(4) requires a licensee to include plans to adjust funding levels to demonstrate a reasonable level of financial assurance, if necessary, in the preliminary cost estimate. The cost estimate is to include a comparison of the preliminary cost estimate with the minimum decommissioning funding amount based on the formulas in 10 CFR 50.75(c), and an assessment of the major factors that could affect the preliminary cost estimate.

3.4 Criteria for Preliminary Decommissioning Cost Estimate

The NRC staff provided guidance on the information that is to be addressed in the preliminary cost estimate in NUREG-1713, "Standard Review Plan for Decommissioning Cost Estimates for Nuclear Power Reactors," and Regulatory Guide (RG) 1.202, "Standard Format and Content of Decommissioning Cost Estimates for Nuclear Power Reactors."

The principal factors that could affect the preliminary cost estimate to be addressed are:

- Decommissioning option/method anticipated
- Potential for known or suspected contamination of the facility or site
- Low-level radioactive waste (LLW) disposition plan
- Preliminary schedule of decommissioning activities
- Any other factors that could significantly affect the cost to decommission

The cost estimate should provide costs for each of the following:

- Pre-decommissioning engineering and planning - decommissioning engineering and planning prior to completion of reactor defueling
- Reactor deactivation - deactivation and radiological decontamination of plant systems to place the reactor into a safe, permanent shutdown condition
- Safe storage - safe storage monitoring of the facility until dismantlement begins (if storage or monitoring of spent fuel is included in the cost estimate, it should be shown separately)
- Dismantlement - radiological decontamination and dismantlement of systems and structures required for license termination (if demolition of uncontaminated structures and site restoration activities are included in the cost estimate, they should be shown separately)
- LLW disposition - LLW packaging, transportation, vendor processing, and disposal

4.0 EVALUATION

4.1 Evaluation of the Program to Manage and Provide Funding of All Irradiated Fuel

In its April 14, 2004, submittal AmerGen stated that the OCNGS decommissioning trust fund balance as of August 30, 2004, was $530.9 million and that the projected amount necessary to

decommission the facility is $422.7 million. Assuming a 2% real rate of return through the operating period, the balance of the trust fund in 2009 is estimated to be $586 million. The licensee has committed the trust fund balance that exceeds the costs required for radiological decommissioning and AmerGen's operating revenues to pay for the costs of spent fuel management for OCNGS. While the regulation requires separate accounts to be established in the decommissioning trust fund to address radiological decommissioning and spent fuel management, the NRC staff has found this proposed funding plan acceptable, although the funds would come from excess radiological decommissioning funds plus operating revenues, if necessary. This approach eliminates the licensee's access to the excess funds and helps assure that funds will be available when needed.

The licensee estimates that the total costs associated with the long-term management of spent fuel in dry cask storage from transferring the remaining fuel to the expanded ISFSI to decommissioning the ISFSI will be $141.7 million for the DECON option. The April 29, 2004, submittal has estimated the annual cost thru 2028. This estimate is based on transfer of fuel to DOE to be completed in 2027 and decommissioning of the facility to be completed in 2028. The spent fuel management and funding program estimated the cost for the storage, security, and insurance to store the fuel, the cost to purchase, load, and transfer the fuel storage canisters, as well as the decommissioning cost of the ISFSI.

The NRC staff finds the spent fuel management program estimates to be reasonable based on a cost comparison with similar decommissioning reactors, while acknowledging the large uncertainties and site-specific variances. The NRC staff recognizes the possibility of funding shortfalls but recognizes the licensee's commitment to fund any additional costs from the operating revenues of AmerGen. The NRC staff finds that the licensee's proposed spent fuel program does not result in a loss of reasonable assurance that adequate funds will be available to complete radiological decommissioning of the site, and addresses the principal areas related to the management of the spent fuel.

4.2 Evaluation of the Preliminary Decommissioning Cost Estimate

AmerGen estimated the total decommissioning cost of OCNGS to be approximately $480 million in 2003 dollars.

As part of the cost review, prior to starting the detailed review of the cost estimate, the NRC staff reviewed the estimate to confirm the support systems/structures necessary to support the safe operation had been identified in the estimate. The validity of the cost estimate is based on a reasonable estimate of the cost to decommission the supporting systems and structures, as well as confirming that all the major equipment necessary to support operation was included.

The licensee has divided the estimated total cost of $480 million into the following principal categories: (1) decontamination costs, (2) support systems/component removal, (3) packaging, (4) transportation, (5) waste disposal, (6) program management, (7) insurance and regulatory fees, (8) miscellaneous equipment costs, (9) property taxes, (10) energy costs, (11) characterization and licensing surveys, and (12) site operation and maintenance costs. In addition, the licensee has included a time line and annual cost projection that identifies when these activities will take place, and the cost associated with each of these items. The cost estimate developed for OCNGS has identified contingency factors for the major activities and they range from 15% to as high as 75% for an activity. In addition, the preliminary estimate has

provided time lines for DECON, delayed DECON, and the SAFSTOR (defined as maintaining and monitoring the facility in a condition that allows the radioactivity to decay, and is later dismantled) options. The waste volume estimates were developed for each of the options and are in a reasonable range.

The licensee has also divided the preliminary cost estimates for DECON, delayed DECON, and SAFSTOR into decommissioning costs related to radiological decommissioning, spent fuel management, and site restoration.

The NRC staff has determined that the preliminary cost estimate reasonably represents the cost to decommission OCNGS.

5.0 COMMENTS BY THE STATE OF NEW JERSEY

The State of New Jersey submitted a letter on December 10, 2004 (J. Lipoti to NRC, ADAMS Accession No. ML043570022) to provide comments on the licensee's October 29, 2004, submittal. The State's comments and the NRC staff's response are set forth below:

Comment 1 "AmerGen did not submit a program by which they intend to manage all irradiated fuel ....."

Response 1 AmerGen provided several submittals, as listed in Section 1 above. The State's comment was apparently limited to the October 29, 2004, submittal. The NRC staff reviewed all the licensee's submittals and found no deficiencies against the subject regulations and associated guidance documents.

Comment 2: ".....The current Spent Fuel Management Plan does not properly address the funding required by NRC regulation."

Response 2 The State apparently only referred to information in the licensee's October 29, 2004, submittal. The NRC staff reviewed all the licensee's submittals referenced in Section 1 above, and found no deficiencies against the subject regulations and associated guidance documents.

6.0 CONCLUSION

The NRC staff finds that the AmerGen program for the long-term storage of OCNGS spent fuel adequate as set forth in Section 4.1 above, and therefore, concludes that the spent fuel management program for OCNGS complies with 10 CFR 50.54(bb). The NRC staff approves the program on a preliminary basis.

The NRC staff finds that the the preliminary decommissioning cost estimate meets the guidance in NUREG-1713 and RG 1.202, and therefore, complies with the requirements of 10 CFR 50.75(f)(2). In addition, the NRC staff finds that AmerGen had provided sufficient details associated with the funding mechanisms.

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Dated: March 25, 2005

Oyster Creek Nuclear Generating Station

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