

August 17, 2005

Mr. James A. Spina
Vice President Nine Mile Point
Nine Mile Point Nuclear Station, LLC
P. O. Box 63
Lycoming, NY 13093

SUBJECT: NINE MILE POINT NUCLEAR STATION, UNIT NO. 1 (NMP-1) - IRRADIATED
FUEL MANAGEMENT PLAN AND PRELIMINARY DECOMMISSIONING COST
ESTIMATE (TAC NOS. MC4399 AND MC5544)

Dear Mr. Spina:

By letters dated August 23, and December 29, 2004, as supplemented by letters dated May 12, May 27, and June 9, 2005, you provided the NMP-1 irradiated fuel management plan in accordance with Title 10 of the *Code of Federal Regulations* (10 CFR), Part 50, Section 50.54(bb) and the NMP-1 preliminary decommissioning cost estimate in accordance with 10 CFR 50.75(f)(2), respectively. The Nuclear Regulatory Commission (NRC) staff has completed its review of your submittals. The NRC staff has determined that the licensee's program for long-term storage of spent fuel and the preliminary cost estimate for decommissioning are adequate for NMP-1 and provide sufficient details of the funding mechanisms. The NRC staff concludes that the licensee's spent fuel management program complies with 10 CFR 50.54(bb) and is approved on a preliminary basis. The NRC staff also concludes that the preliminary decommissioning cost estimate for NMP-1 complies with the requirements of 10 CFR 50.75(f)(2) and is approved. Details of the NRC staff's evaluation are contained in the enclosed safety evaluation.

If you have any questions, please contact me at 301-415-1402.

Sincerely,

/RA/

Timothy G. Colburn, Senior Project Manager, Section 1
Project Directorate I
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket No. 50-220

Enclosure: Safety Evaluation

cc w/encl: See next page

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SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO NINE MILE POINT NUCLEAR STATION, UNIT NO. 1

SPENT FUEL MANAGEMENT PLAN AND

DECOMMISSIONING PRELIMINARY COST ESTIMATE

DOCKET NO. 50-220

1.0 INTRODUCTION

Pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR), Part 50, Section 50.54(bb), nuclear power reactors that are within 5 years of expiration of their operating license must submit a spent fuel management and funding program to the Nuclear Regulatory Commission (NRC) for review and preliminary approval. The program should discuss the means by which the licensee intends to manage and provide funding for the management of spent fuel until the spent fuel is transferred to the Department of Energy (DOE) for permanent disposal. In the same time period, 10 CFR 50.75(f)(2) requires the licensee to submit a preliminary cost estimate which includes an up-to-date assessment of the major factors that could affect the cost to decommission the reactor.

The NRC staff's review is based on the following Constellation Energy submittals dated December 29, 2004 (NMP1L 1906) entitled "Submittal of Nine Mile Point Unit 1 Preliminary Decommissioning Cost Estimate," August 23, 2004 (NMP1L 1862) entitled "Notification of Irradiated Fuel Management Plan in Accordance with 10 CFR 50.54(bb)," May 12, 2005 (NMP1L 1951) entitled "Response to NRC Request for Additional Information Regarding the Irradiated Fuel Management Plan," May 27, 2005 (NMP1L 1954) entitled, "Response to NRC Request for Additional Information Regarding the Preliminary Decommissioning Cost Estimate" and June 9, 2005 (NMP1L 1956) entitled, "Response to NRC Request for Additional Information Regarding the Irradiated Fuel Management Plan."

2.0 BACKGROUND

The Nine Mile Point Nuclear Station (NMPNS) is located approximately 7 miles northeast of Oswego, New York. The NMPNS is located on Lake Ontario. The NMPNS consists of Nine Mile Point, Unit 1 (NMP1) and Nine Mile Point, Unit 2 (NMP2) reactors with supporting facilities. NMP1 operates under a full-term operating license at a maximum rated power level of 1850 megawatts thermal (MWT) with a corresponding gross electrical output of 610 megawatts electric (MWe). NMP1 was designed and constructed by the General Electric Company. The expiration date of the NMP1 operating license is August 22, 2009. NMP1 is owned by Constellation Energy. The James A. FitzPatrick Nuclear Power Plant is adjacent to the NMPNS.

Enclosure

Currently, Constellation Energy does not intend to construct an independent spent fuel storage installation (ISFSI) at the site for NMP1, and will store the spent fuel in wet storage. Constellation Energy estimates that DOE will initiate spent fuel receipt in 2025 and the transfer will be completed in 2045. 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 estimated.

In Constellation Energy's submittal dated May 26, 2004 (NMP1 1829), Constellation Energy submitted a licensee renewal application (LRA) to the NRC. The LRA reaffirmed the commitment to seek licensee renewal for NMP1. If NMP1 ceases operation in August 2009, Constellation Energy will comply with existing NRC's licensing requirements, including the operation and maintenance of the systems and structures needed to support continued operation of the spent fuel pool. Constellation Energy will fund the operating costs associated with NMP1 irradiated fuel storage as part of the cost to operate the NMPNS.

3.0 REGULATORY EVALUATION

3.1 Regulatory Requirement (10 CFR 50.54(bb))

Pursuant to 10 CFR 50.54(bb), "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 occurs 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 [DOE] for its ultimate disposal in a repository....."

3.2 Criteria (10 CFR 50.54(bb))

For the NRC to evaluate and provide preliminary approval of the spent fuel management and funding program, the submittal should include:

- 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 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 (10 CFR 50.75(f)(2))

10 CFR 50.75(f)(2) requires that a 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." Section 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 should 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.

If necessary, as required by 10 CFR 50.75(f)(4), the preliminary cost estimate shall also include plans for adjusting levels of funds assured for decommissioning to demonstrate a reasonable level of assurance that funds will be available to cover the cost of decommissioning.

3.4 Criteria (10 CFR 50.75(f)(2))

NUREG-1713, entitled "Standard Review Plan for Decommissioning Cost Estimates for Nuclear Power Reactors," Section C1 provides additional guidance on the information that is to be addressed in the preliminary cost estimate. The principal factors 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.
- Radiological Costs - separate the cost for radiological decommissioning from non-radiological costs.

4.0 TECHNICAL EVALUATION

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

The licensee has estimated the cost to isolate the spent fuel pool and supporting fuel handling system at \$3.32 million and an estimated annual cost of \$6.26 million for maintaining the fuel in wet storage.

The total costs associated with the long-term management of spent fuel includes an estimated annual cost of \$6.26 million for maintaining the fuel in wet storage. In addition, the licensee has estimated the cost to isolate the spent fuel pool and supporting fuel handling system at \$3.32 million, and \$29.0 million for the cost for preparation, packaging, and shipping the fuel to DOE. This cost would be incurred beginning in the year 2025 and continuing through 2045.

The LRA reaffirmed the commitment to seek licensee renewal for NMP1. If NMP1 ceases operation in August 2009, Constellation Energy 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. Constellation Energy will fund the operating costs associated with NMP1 irradiated fuel storage as part of the cost to operate the NMPNS. The licensee has committed, at 5 years prior to the expiration of the NMP2 operating license (October 31, 2021), to submit a site spent fuel management plan that will address management and funding for both NMP1 and NMP2 in accordance with 10 CFR 50.54(bb).

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 NMP2. The NRC staff finds that the licensee's proposed spent fuel program addresses the principal areas related to the management of the spent fuel.

4.2 Evaluation of the Preliminary Decommissioning Cost Estimate

In Constellation Energy's submittal dated December 29, 2004 (NMP1L 1906), entitled "Submittal of Nine Mile Point Unit 1 - Preliminary Decommissioning Cost Estimate," the licensee stated that projected amount necessary to decommission NMP1 is \$719.3 million (2004 dollars) for the SAFSTOR scenario. The total cost of \$719.3 million includes \$296.3 million to cover the cost of maintaining NMP1 during the 49-year SAFSTOR period. The May 27, 2005 (NMP1L 1954) submittal entitled, "Response to NRC Request for Additional Information Regarding the Preliminary Decommissioning Cost Estimate," stated that the preliminary cost estimate addressed radiological decommissioning cost. The Biennial Report submitted March 29, 2005, stated that the trust fund balance as of December 3, 2004, was \$309.2 million. The Biennial Report is being reviewed under a separate action to determine if the licensee has demonstrated

reasonable assurance that funds will be available to decommission NMP1. Constellation Energy is required to submit updated information for the Biennial Report every 2 years for NRC's review.

As part of the review, prior to starting the detailed review of the decommissioning cost estimate, the NRC staff reviewed the estimate to confirm that radiological and non-radiological decommissioning costs were separated and 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 the cost of disposal of the low level waste was also addressed.

The licensee has divided the estimated total cost of \$719.3 million cost into the following principal categories: 1) radioactive component removal, 2) decontamination and dismantlement, 3) packaging, 4) management and engineering support, 5) low-level waste disposal, and 6) administrative 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 NMP1 has identified an average contingency factor for the major activities of 20.4 percent. The contingency factors were as high as 50 percent for waste issues while 15 percent for many standard costs. In addition, the preliminary estimate has provided time lines for the SAFSTOR option.

The NRC staff has determined that the preliminary cost estimate reasonably represents the cost to decommission NMP1 and the NRC staff is reviewing the Biennial Report information for NMP1 to determine if the licensee has demonstrated reasonable assurance that the funds will be available to decommission NMP1.

5.0 CONCLUSION

The NRC staff finds that Constellation Energy's program for the long-term storage of spent fuel and the preliminary cost estimate for NMP1 are adequate and provide sufficient details associated with the funding mechanisms. The NRC staff, therefore, concludes that the Constellation Energy spent fuel management program for NMP1 complies with 10 CFR 50.54(bb) and approves the program on a preliminary basis. In addition, the NRC staff finds that the preliminary cost estimate for NMP1 complies with the requirements of 10 CFR 50.75(f)(2) and, therefore, the NRC staff approves the preliminary cost estimate.

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Date: August 17, 2005

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