GE Nuclear Energy

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U.S. Nuclear Regulatory Commission
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REFERENCE: SNM-2500 Docket 72-1 TAC No. L23767

SUBJECT: Response to NRC Transmittal of November 30, 2004, "Preliminary License and Safety Evaluation Report for Amended Materials License SNM-2500 for the General Electric Morris Operation Independent Spent Fuel Storage Installation (TAC NO L23767)

We have completed review of the Subject document, and have the following comments, detailed below and on the attached marked up pages of the document.

Page 3 of 3 Paragraph 14, line 4, the following words should be changed –

"Section 4.0, "Security Operation Policy" should be changed to "Section 3.4, Security Force Training and Qualification"

Additionally, Section 4.8 "Basin Water Chemical Characteristics" of the Safety Evaluation Report disagrees with SNM-2500 Amendment 12. Amendment 12, 4.5.1 reads as follows –

Conductivity Less than 1.35 μMho/cm (equivalent to pH of 5.5 to 8.0 in demineralized water)

Section 4.8 of the SER reads –

Conductivity Less than 2.5 μMho/cm (equivalent to pH of 4.5 to 9.0)

These two pages are also attached.

Sincerely,

E. W. Secko

Edward W. Secko
Regulatory Compliance Manager

cc: C. M. Regan
Spent Fuels Projects Office

NMSS01

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I acknowledge receipt of the GE-MO reply to the subject NRC letter dated November 30, 2004.

Signed	Title	Date

Table A Authorized materials - instrument, calibration, and laboratory sources

Materials	Chemical and/or Physical Form	Quantity
Radionuclides with atomic numbers ranging from 1 to 83	Solution or calibration disc	Total Aggregate of 5 curies
Cobalt-60	Sealed source	10 curies
Cesium-137	Sealed source	10 curies
Thorium-230	Any	1 millicurie
Neptumium	Any	20 grams
Plutonium	Any	50 grams
Uranium-235 (In uranium of any enrichment)	Any	250 grams
Americium-241	Any	200 μCi
Americium-241	Sealed source	40 curies
Plutonium-Beryllium	Sealed source	2 curies
Uranium-natural	Any	15 kilograms

11. Pursuant to 10 Cfr 40 the licensee is authorized to possess, store, and transfer a combined quantity of unirradiated natural and unirradiated depleted uranium not to exceed 42 tonnes. This limitation does not include uranium in stored fuel or uranium used in construction of shipping casks. Natural UO_3, UO_2, UNH, and UF_6, used during MFRP testing may be stored in process vessels in the Canyon area or in the site warehouse.

12. No changes shall be made to the Radiological Emergency Plan for Morris Operation, NEDO-31955, which would decrease the effectiveness of the emergency plan without the prior approval of the Commission as evidenced by a license amendment. The license shall maintain implementing procedures for the Radiological Emergency Plan as necessary. The license shall maintain records of changes that are made tot eh plan without prior approval for a period of two years from the date of the change. Within six months of such change the licensee shall furnish the Director, Office of Nuclear materials Safety and Safeguards, and th NRC Region III Office and report containing a description of each change.

13. The Technical Specifications contained in Appendix A attached hereto, as revised through Amendment 12, are incorporated into the license. The licensee shall operate the installation in accordance with the Technical Specifications in Appendix A. Appendix A contains Technical Specifications related to Environmental Protection to satisfy the requirements of 10 CFR 72.44(d)(2).

14. The licensee shall follow the physical protection plan entitled "Physical Security Plan for Morris Operation, NEDS-14507," Revision D5, dated April 1995; and as it may be further amended under the provisions of 10 CFR Parts 72.44(e) and 72.180. The requirements of 10 CFR Part 73, Appendix B for guard training and qualification are incorporated in Section 4.0, "Security Operation Policy," of the approved security plan. The requirements of 10 CFR, Part 73, Appendix C, for contingency planning are addressed in Section 9.0 of the physical security plan.

Section 3.4, "Security Force Training and Qualificaton"

4.4.2 Basis

Bases for these test and calibration requirements are as follows:

a. Basin Leak Detection System: Operation of this system ensures that a leak in the basin liner will be promptly detected so that corrective action can be initiated. Since the operation of the system is related to the level of water in the detection system, the level alarm set point is checked and instruments receive periodic calibration.

b. Area Radiation Monitors: The audible alarm system for these monitors is tested (operated), and the alarm set point calibrated periodically to provide assurance of reliable operation within equipment specifications, to alert personnel to radiation above preset levels.

c. Criticality Monitors: The audible alarm systems for these monitors, which warn personnel of a criticality, are tested (operated) and the alarm set point calibrated periodically to provide assurance of reliable operation within equipment specifications.

4.5 BASIN WATER CHEMICAL CHARACTERISTICS

4.5.1 Specification

Basin water chemistry shall be maintained as follows:

Item	Acceptable Analysis
Conductivity	less than 1.35 μMho/cm (equivalent to pH of 5.5 to 8.0 in demineralized water)

See 4.8 Page 5 of SER

4.5.2 Basis

Basin water chemical characteristics are selected to maintain a benign environment for fuel and equipment stored in the basin water.

4.6 BASIN WATER RADIOACTIVE CONTAMINANTS

4.6.1 Specification

Additional basin water cleanup measures shall be initiated if the concentration of radioactive material in the water exceeds 0.02 μCi/ml beta.

4.6.2 Basis

Periodic sampling of basin water is required to assure that concentration of radioactive materials remain as low as reasonably achievable. The value selected is consistent with current decontamination practices.

NRC Finding: Acceptable — GE-Morris has eliminated its ability to receive new spent fuel for storage. This section is no longer required in the Technical Specifications.

Section 4.8 Basin Water Chemical Characteristics

Approved Version: Specifies the basin water shall be maintained as follows.

Item	Acceptable Analysis
pH	4.5 to 9.0
$NaNO_3$	<200 ppm
Cl-	<10 ppm

See Page 11 of 17 of Amendment 12 4.5.1

Section 4.5 of Amendment 12, Proposed Revision: Proposes to revise this specification to read as follows.

Item	Acceptable Analysis
Conductivity	Less than 2.5 µmoh/cm (equivalent to pH of 4.5 to 9.0)

GE-MO Justification for Change: A report from L. L. Denio to the GE-MO Safety Committee dated February 16, 1996, provides the justification for assuming an equivalency between conductivity and pH.

NRC Finding: Acceptable — The NRC staff performed an independent evaluation of the relationship between conductivity and water purity and found the evaluation submitted by GE-Morris to be acceptable.

Water quality limits are implemented to assure a suitable water environment for the safe storage of the spent nuclear fuel and submerged equipment. The original water treatment facility produced high-quality water with a dissolved solids concentration of approximately 100 parts per million (ppm), mostly sodium nitrate. This level, while low, was sufficient to permit normal laboratory equipment to accurately measure the concentration of hydrogen ions (H+) in solution (referred to as pH). The installation of a computer controlled demineralization system produced ultra-pure water with dissolved solid levels of less than 0.1 ppm which was too low to permit normal laboratory equipment to accurately measure the pH. Minor changes in water quality caused large swings in the apparent pH of the basin water. This led the licensee to seek an alternative method to verify the quality of the water in the fuels storage basins.

After analysis, GE proposed using conductivity to demonstrate the purity of the basin water. A review by the NRC staff determined that conductivity was an acceptable method of verifying the purity and non-aggressive nature of the water in the spent fuel storage basins. The results of the staff's analysis demonstrated that the ultra-pure water in the storage basins was in equilibrium with the carbon dioxide (CO_2) in the atmosphere which caused it to be mildly acidic. This helped offset the slightly alkaline nature of the makeup water from the demineralizers. Additional independent evaluations by the Pacific Northwest Laboratories in 1977 and the International Atomic Energy Agency (IAEA) in 1998 have shown the durability of spent nuclear fuels in wet storage.