10.0 OPERATION SPECIFICATIONS

10.1 INTRODUCTION

These technical specifications govern the safety of possession and storage of irradiated fuel from light-water reactors at Morris Operation.

10.1.1 DEFINITIONS

The following definitions apply for the purpose of these technical specifications:

a. Administrative Controls: Provisions relating to organization and management procedures, record keeping, review, audit, and reporting necessary to assure operations involved in the storage of spent fuel at Morris Operation are performed in a safe manner.

b. Design Features: Features of the facility associated with the basic design such as materials of construction, geometric arrangements, dimensions, etc., which, if altered or modified, could have a significant effect on safety.

c. Functional and Operating Limits: Limits on fuel handling and storage conditions necessary to protect stored fuel integrity, to protect employees against occupational exposures, and to guard against the uncontrolled release of radioactive materials.

d. Fuel Bundle: The unit of nuclear fuel in the form that is discharged from the core of a light-water reactor (LWR). Normally, will consist of a rectangular arrangement of fuel rods held together by end fittings, spacers and tie rods. The BWR fuel bundle does not include the fuel channel (which is reusable and not shipped with the fuel bundles).

e. Limiting Conditions: The lowest functional capabilities or performance levels of equipment required for safe operation of the facility.

f. Surveillance Requirements Include: (I) inspection of spent fuel in storage and monitoring, (ii) inspection, test and calibration activities to ensure the necessary integrity of required systems, components and the spent fuel in storage is maintained, (iii) confirmation that operation of the installation is within the required functional and operating limits, (iiii) a confirmation that limiting conditions required for safe storage are met.

10.2.0 FUNCTIONAL AND OPERATING LIMITS

2.1 AUTHORIZED MATERIALS

10.2.1.1 Specification

a. Light-water reactor nuclear fuel stored at GE-MO has previously met specific requirements detailed in earlier revisions of this document. Fuel currently in storage has been at GE-MO since 1989, the basins are essentially full. No new fuel will be received

and storage is limited to the current inventory as shown below.

Station	Type	Cladding	Bundle Array	1st Bundle Received	Last Bundle Received	Total Bundles
Connecticut Yankee	PWR	SS	15x15	01-13-72	08-05-87	82
Cooper	BWR	Zircalloy	7x7 & 8x8	08-24-84	01-27-89	1054
Dresden	BWR	Zircalloy	7x7	09-05-75	03-31-77	753
Monticello	BWR	Zircalloy	8x8	11-21-84	04-24-87	1058
San Onofre	PWR	SS	14x14	03-27-72	09-07-80	270

b. Tools and equipment incidental to the conduct of General Electric's nuclear and nuclear related business that have become radioactively contaminated may be possessed, repaired and decontaminated. The total contamination of all tools and equipment shall not exceed 10 Ci as determined by external exposure from the items as received. Items containing smearable contamination shall be packaged for storage.

c. Tools and equipment specifically related to the conduct of fuel storage operations that have become contaminated with radioactive materials may be possessed.

10.2.1.2 Basis

The design criteria and subsequent safety analysis of GE-MO assumed certain characteristics and limitations for fuels that are to be stored. Specification 10.2.1.1a assures that these bases remain valid by defining the authorized stored fuel inventory.

The design bases for criticality analyses were selected from detailed analytical studies which were based on the physical parameters of specific fuel designs (See Table A.10-1, Appendix A.10). The largest bundle cross section area and infinite bundle length were assumed in the calculations. These limits were based on unirradiated, clean fuel and include allowance for the poisoning effect of the stainless steel baskets. Fuel centerline locations and other orientations were assumed to be those giving the maximum system reactivity.

Specification 10.2.1.1b provides for storage of tools and equipment incidental to the conduct of General Electric's nuclear businesses while awaiting decontamination, reuse, or ultimate disposal. Activity will be calculated from exposure rate measurements from a package, assuming the radiation originates from a uniform volumetric source having approximately the same dimensions as the package. Unless otherwise determined, gamma emissions of 1 MeV/disintegration will be assumed.

Specification 10.2.1.1c provides for storage of tools and equipment specifically related to General Electric fuel storage operations while awaiting decontamination, reuse, or ultimate disposal.

10.2.2 FUEL STORAGE PROVISIONS

10.2.2.1 Specification

Irradiated fuel bundles shall be stored in authorized fuel storage baskets, mounted in a support grid, under water in fuel storage basins.

10.2.2.2 Basis

The design criteria and subsequent analysis for GE-MO assume irradiated fuel is stored under water in fuel storage baskets, mounted in a support grid in a fuel storage basin. Specification 10.2.2.1 assures that these assumptions remain valid. The fuel storage baskets and support grid are those described in Section 5.

10.3 LIMITING CONDITIONS

10.3.1 LIMITING CONDITION – WATER SHIELD

10.3.1.1 Specification

The depth of water between the top of the fuel bundle upper tie plate and the surface of the basin water shall be a minimum of nine (9) feet.

10.3.1.2 Basis

This specification establishes a minimum water shielding depth to limit radiation dose rate in the basin area. This specification applies to all fuel in storage or being transferred from storage to cask (also, see Section 5.2).

Tests have shown that the dose rate at the water surface does not increase above background until the water thickness is decreased to about 7 feet. A conservative water shield thickness of 9 feet has been chosen to provide an increased margin of safety.

10.3.2 LIMITING CONDITION – CRITICALITY

10.3.2.1 Specification

A structure (unloading pit doorway guard: Figure 5-5 shall be used at the doorway between the unloading basin and storage Basin No. 1 to prevent a basket from tipping in a manner such that its contents may be emptied into the unloading basin.

10.3.2.2 Basis

The analysis of a fuel basket drop accident (Section 8) indicates that a basket dropped or tipped over in Basin No. 1, near the doorway to the cask unloading basin, could empty its contents into the unloading basin. It is assumed that the fuel might fall into a critical configuration in the

bottom of the unloading basin. The unloading pit doorway guard assures that a basket cannot empty its fuel into the unloading basin.

10.4 SURVEILLANCE REQUIREMENTS

There is no credible event, planned discharge or design basis accident identified at GE-MO that would expose a member of the public to radiation in excess of the limits specified in 10 CFR 72.104 or 10 CFR 72.106. However surveillance of various radiation levels, water levels, and other physical quantities, as well as inspections and other periodic activities to provide assurance of specification compliance are contained in specific GE-MO Safety Committee approved Compliance and Operability Tests. Included among these are:

10.4.1 EFFLUENT AIR

10.4.1.1 Specification

Effluent air shall be continuously sampled for particulates at a location between the main stack and the sand filter. Samples shall be analyzed weekly for gross beta (ß) activity. The maximum value shall not exceed a weekly average of $4x10^{-8}$ µCi/ml.

10.4.1.2 Basis

This specification requires sampling of ventilation air leaving the sand filter to demonstrate that offsite concentrations do not exceed 10 CFR 20 limits. The GE-MO sampling and analysis program provides data for estimating the amounts of radioactive material released to the environment during routine or accident conditions.

10.4.2 HOLDING BASINS

10.4.2.1 Specification

Water in the sanitary holding basin and evaporation pond shall be analyzed at least once each month for gross alpha and beta radiation. The maximum concentrations shall not exceed 10^{-5} µCi/ml beta and $5x10^{-6}$ µCi/ml alpha radiation. If a pond is dry,[2] no sampling of it is required.

10.4.2.2 Basis

Morris Operation is designed to preclude the release of radioactive materials in normal liquid effluents. As a precautionary measure the sanitary lagoons, which receive and retain plant sewage and some ground water runoff, are periodically sampled to detect inadvertent contamination by radioactive materials.

10.4.3 SEALED SOURCES

10.4.3.1 Specification

Each licensed sealed source (not irradiated fuel) containing radioactive material in excess of 100 µCi of beta-gamma emitting material or 10 µCi of alpha-emitting material shall be tested for leakage at least once every 6 months, except that each source designed for the purpose of emitting alpha particles shall be tested at intervals not to exceed 3 months. The maximum level of removable (nonfixed) contamination shall be less than 0.005 µCi total for each source, using dry-wipe testing techniques.

10.4.3.2 Basis

Surface contamination is measured to determine that a sealed source has not developed a leak. The limitations on removable contamination are based on 10CFR 70.39(c) limits for plutonium, but other provisions of this reference are not applicable.

10.4.4 INSTRUMENTATION

10.4.4.1 Specification

Systems and equipment shall be tested for operability and calibrated at least once during the intervals specified in Table 4-2. Calibration shall be performed in accordance with manufacturer's recommendations, and operational tests shall be performed to check alarm functions and demonstrate other operational features of the system or equipment

Table 4-2 Summary Requirements System and Equipment Test Calibration

System or Equipment	Operability Test	Calibration
Area Radiation Monitors	Quarterly	Quarterly
Criticality Monitors	Annual	Quarterly

10.4.4.2 Basis

Bases for these test and calibration requirements are as follows:

a. 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 avert personnel to radiation above preset levels.

b. 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.

10.4.5 BASIN WATER CHEMICAL CHARACTERISTICS

10.4.5.1 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)

10.4.5.2 Basis

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

10.4.6 BASIN WATER RADIOACTIVE CONTAMINANTS

10.4.6.1 Specification

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

10.4.6.2 Basis

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

10.5 DESIGN FEATURES

10.5.1 FUEL STORAGE BASIN

The energy-absorbing pad on the cask set-off shelf shall not be altered without appropriate safety review and documentation in accordance with Section 9.4.4.

10.5.1.1 Basis

The cask drop accident was analyzed for the IF-300 cask with the energy-absorbing pad in place (Section 8).

10.5.2 FUEL STORAGE SYSTEM

The following pieces of equipment employ favorable geometry, specific materials, and methods of construction to assure nuclear criticality safety and radiation protection. Modifications to the design in dimensions, materials of construction or construction methods shall not be made without appropriate safety review and documentation in accordance with 10 CFR 72.48.

10.5.2.1 Fuel Storage Baskets

10.5.2.1.1 Basis

a. The neutron attenuation properties of stainless steel are considered in the nuclear safety analysis.

b. The structural strength, as fabricated, is considered in seismic accident analyses and is related to nuclear safety.

c. The heat transfer properties are considered in fuel cooling thermal analyses and are related to nuclear safety.

10.5.2.2 Basket Support Grids

10.5.2.2.1 Basis

a. The spacing of the grids determines the spacing of fuel that was used in the nuclear safety analysis.

b. The structural strength of the grids and the grid-to-wall intertie are integral to the strength of the system during the design seismic conditions, and therefore related to nuclear safety.

10.5.2.3 Fuel Grapples

10.5.2.3.1 Basis

Fuel grapples used with the fuel handling crane and those used with the basin crane are designed to preclude lifting a fuel bundle closer than 9 feet to the normal basin water level.

10.5.2.4 Fuel Basket Grapples

10.5.2.4.1 Basis

Basket grapples are designed for use with the basin crane, and are designed to preclude lifting a basket such that the fuel bundles are closer than 9 feet to the normal basin water level.

10.5.2.5 Unloading Pit Doorway Guard

10.5.2.5.1 Basis

The unloading pit doorway guard is designed to prevent a loaded fuel storage basket from being tipped over when leaving the basin storage area and entering the unloading pit and thereby spilling the spent fuel assemblies into the unloading pit.

10.6 ADMINISTRATIVE CONTROLS

10.6.1 The Manager – Morris Operation shall be responsible for overall facility operation in

accordance with these specifications and applicable government regulations, and shall delegate in writing the succession of this responsibility during his absence. Operations involving licensed materials shall be performed by, or under the supervision of individuals designated by the Manager – Morris Operation, or his delegate.

10.6.2 ORGANIZATION

10.6.2.1 The facility staff organization is shown in the CSAR, Figure 9-2 and senior positions and responsibilities within the organization are described in CSAR 9.2.3.

10.6.3 PLANS AND PROCEDURES

Plans and procedures shall be established and implemented to assure compliance with these technical specifications and applicable governmental regulations.

10.6.3.1 Changes to Plans and Procedures

All changes or revisions of established plans or procedures required by this section shall be made in accordance with the GE-MO modification control practices described in Section 9.

10.6.3.2 Plans and Procedures – Minimum Requirements

Plans and procedures required by this section shall include:

a. A safety manual defining responsibilities and specifying actions to protect the health and safety of employees and others while onsite, safety training programs as appropriate, and other measures to maintain exposures as low as reasonably achievable.

b. Requirements for analysis of cask drop accident consequences prior to handling spent nuclear fuel shipping casks not previously handled at GE-MO per 10 CFR 72.48.

c. Procedures for the conduct of routine fuel storage operations.

d. A Preventive maintenance system for structures, systems and components important to site radiological and criticality safety.

e. Arrangements for providing makeup water to the storage basins under normal and emergency conditions.

10.6.4 REVIEW AND AUDIT

10.6.4.1 Safety Committee

Plans, procedures and operations carried out under established plans and procedures involving elements of radiological safety shall be reviewed and approved by a Safety Committee. Three members must be present to conduct business. Other individuals may participate in SC

meetings. This committee will consist of members as determined by the Manager, Morris Operation and described in Safety Committee operating procedure and CSAR Section 9.0, Figure 9-2.

The Committee shall normally meet on a monthly basis, but at no greater than 45-day intervals. The Manager, Morris Operation shall establish appropriate procedures and practices for the conduct of Committee responsibilities.

10.6.4.2 Audits

Morris Operation activities shall be audited to ascertain the degree of compliance with specifications, standards and procedures. Audits shall be conducted by organizations and persons at such times as designated by GE Nuclear Energy Management. Audits and audit response shall be performed in accordance with General Electric procedures.

10.6.5 ACTION REQUIRED FOR SPECIFICATION NONCOMPLIANCE

10.6.5.1 Functional and Operating Limits

The following actions shall be taken if a functional or operating limit is exceeded:

a. Prompt action shall be taken to assure timely operation return of operations to specification compliance.

b. The Safety Committee shall be promptly notified of the noncompliance.

c. NRC Operations Center shall be notified within 24 hours, advising them of events that resulted in a noncompliance condition.

d. A review of the incident shall be made by the Safety Committee to establish the cause and to define means to prevent reoccurrence in accordance with the GE-MO Reporting of Defects and Noncompliances program as documented in NEDE-31559 and implementing procedures.

10.6.5.2 Limiting Conditions

The following actions shall be taken if a limiting condition is found to have been exceeded:

a. Prompt corrective action shall be taken to assure timely return of operations to specification compliance.

b. The Safety Committee shall be advised of the noncompliance within 24 hours.

c. A report shall be sent to the NRC Operations Center within 30 days to advise them of events resulting in limiting conditions being exceeded.

d. A review of the incident shall be made by the Safety Committee to establish the cause and to define means to prevent reoccurrence in accordance with the GE-MO Reporting of Defects and Noncompliances program as documented in NEDE-31559 and implementing procedures.

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10.6.5.3 Surveillance Requirements

The following actions shall be taken if surveillance requirements are not satisfied:

a. The Manager – Morris Operation, or his delegate, shall take such action as may be required to assure future compliance with surveillance requirements and, if necessary, to assure return of operations to specification compliance in minimum time.

b. The Safety Committee shall be advised of any event, or sequence of events, involving surveillance requirements that involve systems directly related to radiological safety. The Committee shall investigate such events and recommend corrective action.

10.6.5.4Design Features

Design features shall only be changed in accordance with specification 6.3.1, Chapter 9 and 10 CFR 722.48. Unauthorized modifications of specified design features, or unauthorized introduction of unapproved tools, fixtures or other equipment shall require action as specified for functional and operating conditions in Specification 6.5.1.[3]

10.6.6 LOGS, RECORDS AND REPORTS

10.6.6.1 Logs and Records

a. Nonroutine or significant events that occur during a shift shall be recorded in a shift log.

b. Minutes of the Safety Committee shall be documented, including copies of reports required in Section 6.5.1, and other actions of the Committee.

c. Records of facility changes, and changes in procedures described in the CSAR shall be maintained throughout the lifetime of the facility.

d. Records of tests or experiments conducted under provisions of Section 9 and 10 CFR 72.48 shall be maintained throughout the lifetime of the facility, and shall include written safety evaluations that provide the bases for determining the test or experiment did not involve unreviewed safety or environmental questions.

10.7 REFERENCES AND NOTES

1. The use of the unloading pit doorway guard is described in CSAR Chapters 1 and 5.

2. Dry to the extent that water samples cannot be obtained in the usual manner.

3. Authorizedd modifications and approved tools, fixtures, or other equipment are those processed under the provisions of CSAR Section 9.

10.8 ENVIRONMENTAL MONITORING PROGRAM

10.8.0.1 Specification

The licensee will maintain the effectiveness of the environmental monitoring program detailed in specific Compliance and Operability Test procedures. Changes in frequency or collection sites by the licensee shall be evaluated against the experience of acquired data and reported with the information required by Specification 8.2.

10.8.0.2 Basis

The environmental monitoring program results from over 20 years of Morris Operation environmental monitoring experience. These years of operational experience with the monitoring program provide a sound basis for evaluating the programs effectiveness.

10.9 ANNUAL ENVIRONMENTAL REPORT

10.9.1 Specification

An annual report will be submitted to the NRC Region III office with a copy to the Director, Office of Nuclear Material Safety and Safeguards, within 60 days after January 1 of each year, specifying the quantity of each of the principal radionuclides released to the environment in liquid and gaseous effluents during the previous 12 months of operation and such other information as may be required by the Commission to estimate maximum potential radiation dose commitment to the public resulting from effluent release and direct radiation at the site property protection area.

10.9.2 Basis

The report of Specification 7.3.1 is required pursuant to 10 CFR 72.44(d)(3).