CHAPTER 11

QUALITY ASSURANCE

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LIST OF ACRONYMS

CFR	Code of Federal Regulations
CCNPP	Calvert Cliffs Nuclear Power Plant
HSM	Horizontal Storage Module
ISFSI	Independent Spent Fuel Storage Installation
NPMD	Nuclear Project Management Department
NSR	Non-Safety-Related
QA	Quality Assurance

11.0 QUALITY ASSURANCE

The quality assurance (QA) program for the Calvert Cliffs Independent Spent Fuel Storage Installation (ISFSI) covers the construction phase, the operational phase, and the decommissioning phase of structures, systems, and components of the ISFSI important to safety. The construction phase includes design, fabrication, construction, and start-up testing. The operational phase includes operation, maintenance, and modification.

The QA program consists of a QA policy, Nuclear Program Directive EN-6, and a QA manual for the horizontal storage modules (HSMs).

The program is applicable to those structures, systems, components, and activities associated with the ISFSI design, construction, maintenance, and operation allowed per the requirements of Subpart G of 10 Code of Federal Regulations (CFR) Part 72, "Quality Assurance." The QA manual for HSM construction phase contains the implementing procedure. Operation phase implementing procedures have also been developed.

11.1 10 CFR PART 50, APPENDIX B, QUALITY ASSURANCE PROGRAM

Activities associated with the operational phase and the decommissioning phase are controlled by existing programs and policies under the Calvert Cliffs 10 CFR Part 50 Appendix B QA program. The construction phase of components identified as safety related in Table 3.4-1 of the ISFSI Safety Analysis Report are also controlled by the 10 CFR Part 50 Appendix B QA program. Activities associated with the construction phase of those components identified as designated non-safety-related (NSR) in Table 3.4-1 are controlled by the 10 CFR Part 72 Subpart G QA program described in Section 11.2 of the ISFSI Safety Analysis Report.

Table 3.4-1 identifies the transfer cask and dry shielded canisters as important to safety; these items, along with the cask lifting yoke, have also been identified as safety-related under 10 CFR Part 50, Appendix B. The Calvert Cliffs Nuclear Power Plant 10 CFR Part 50, Appendix B, Quality Assurance Program is established, maintained, and executed with regard to these components of the ISFSI. This QA program is described in the Quality Assurance Topical Report, as referenced in Appendix 1B of the Calvert Cliffs Nuclear Power Plant Updated Final Safety Analysis Report. This QA program was submitted to the Nuclear Regulatory Commission on December 5, 2005, and was approved by the Nuclear Regulatory Commission on December 21, 2006.

Additionally, activities associated with the operational phase and the decommissioning phase of the ISFSI are controlled by existing programs and policies under the Calvert Cliffs Nuclear Power Plant 10 CFR Part 50, Appendix B, QA Program.

11.2 10 CFR PART 72, SUBPART G, QUALITY ASSURANCE PROGRAM

Table 3.4-1 identifies the Horizontal Storage Modules (HSMs) as important to safety. For construction of additional HSMs, Calvert Cliffs Nuclear Power Plant, Inc. (CCNPP) will execute the applicable criteria of 10 CFR Part 72, Subpart G in a graded approach to an extent that is commensurate with the HSMs importance to safety. This graded approach is also known as "augmented quality," or "designated non-safety-related (NSR)," and meets the requirements of 10 CFR Part 50 and 10 CFR Part 72. "Designated NSR" is defined as the quality program which involves the application of certain QA requirements to components to provide reasonable assurance that the structures, systems, components, and activities meet regulatory requirements and commitments. Horizontal Storage Module construction will be controlled in accordance with the following criteria.

11.2.1 QUALITY ASSURANCE ORGANIZATION (10 CFR 72.142, 72.144, 72.160, 72.174, 72.176)

Construction activities will be administered by the Nuclear Project Management Department (NPMD) organization. This organization will use experienced individuals to perform inspection and audit activities.

The QA program for construction will be documented in the QA Manual for the HSM Construction Phase of the ISFSI. This Manual will be prepared by the NPMD organization for "designated NSR" items and services, and approved by the Manager-NPMD.

For "designated NSR" components, inspection of activities affecting quality during construction will be performed as described in the HSM construction guidelines and design specifications. This program establishes inspection requirements to be performed by individuals other than those who performed the activity being inspected, to verify conformance with the documented instructions, procedures, and drawings for accomplishing the activity. Conformance with procurement documents and inspection of items and systems following installation are included in the program.

The records associated with "designated NSR" items are subject to administrative controls and maintained until the Nuclear Regulatory Commission terminates the ISFSI license, in accordance with CCNPP's Nuclear Program.

Planned and periodic audits are carried out to verify compliance with the QA program and to determine the effectiveness of the program in accordance with CCNPP's Nuclear Program.

11.2.2 DESIGN CONTROL (10 CFR 72.146)

The original design of the HSM, its design basis, and any changes to the design not resulting from HSM construction are subject to the existing controls of CCNPP's 10 CFR Part 50, Appendix B, QA Program or the architect engineer's QA program. The architect engineer's QA program has been approved through CCNPP's 10 CFR Part 50, Appendix B, QA Program. If HSM design changes are required solely as a result of the HSM construction activities, the design changes will be administered in accordance with CCNPP's Nuclear Program.

The QA manual for the HSM construction phase of the ISFSI is subject to audit by Nuclear Performance Assessment Department. This manual is an implementing

document for the ISFSI EN-6. Proposed changes to EN-6 are reviewed by Nuclear Performance Assessment Department for compliance with applicable standards and licensing basis.

11.2.3 DOCUMENT CONTROL (10 CFR 72.152, 72.150)

Measures to control the issuance of "designated NSR" documents such as instructions, procedures, and drawings, including changes, which prescribe all activities affecting quality, are established by various responsible organizations. The measures assure that documents, including changes, are reviewed for adequacy, approved for release by authorized personnel, and distributed and used at the location where the activity is performed. These measures also ensure that changes to documents are reviewed and approved in accordance with CCNPP's Nuclear Program.

Activities such as HSM design modifications, procurement, construction, test, inspection, maintenance, and modification of "designated NSR" components are prescribed and accomplished in accordance with CCNPP's Nuclear Program.

11.2.4 PROCUREMENT DOCUMENT CONTROL (10 CFR 72.148)

Procurement documents for HSM construction materials and components classified "designated NSR" will be processed in accordance with CCNPP's Nuclear Program.

11.2.5 CONTROL OF PURCHASED MATERIAL, EQUIPMENT, AND SERVICES (10 CFR 72.154)

Materials and services will be controlled in accordance with CCNPP's Nuclear Program.

Thorough receipt inspection is performed on the HSM materials to ensure they conform to the construction specifications and the standards referenced therein. For example, concrete and rebar materials are inspected to verify conformance with the American Concrete Institute's requirements. These controls are similar to, but not as proceduralized as, the procurement and dedication of commercial grade items for use in safety-related applications.

11.2.6 IDENTIFICATION AND CONTROL OF MATERIALS, PARTS, AND COMPONENTS (10 CFR 72.156)

Materials, parts, and components of those items determined to be "designated NSR" will be identified and controlled in accordance with CCNPP's Nuclear Program.

11.2.7 HANDLING, STORAGE, AND SHIPPING (10 CFR 72.166, 72.170)

For "designated NSR" items, the handling, storage, shipping, and preservation of materials will be controlled in accordance with CCNPP's Nuclear Program.

Controls for identifying, documenting, segregating, reviewing, reporting and the tagging of non-conforming materials, parts, components, or services will be applied to the "designated NSR" activities in accordance with CCNPP's Nuclear Program.

11.2.8 CONTROL OF SPECIAL PROCESSES (10 CFR 72.158)

Special processes, including welding, heat treating, and non-destructive testing for "designated NSR" components, will be controlled in accordance with CCNPP's Nuclear Program.

Calvert Cliffs Nuclear Power Plant ensures that contractors and their subcontractors acceptably control special processes through surveillance and CCNPP qualification training of contractor personnel.

11.2.9 TEST CONTROL (10 CFR 72.162, 72.164, 72.168)

Testing will be performed as described in the HSM design specifications, construction program guidelines, and procurement documents to demonstrate those structures, systems, and components will perform satisfactorily in service upon completion of the construction phase.

For "designated NSR" items, CCNPP and its approved suppliers shall implement measures to ensure that tools, gauges, instruments, and other measuring and testing devices used in the activities affecting quality are properly controlled, calibrated, and adjusted at regular intervals against certified or recognized standards, and maintained traceable to the National Institute of Standards and Technology.

Measures will be used to indicate the status of inspections and tests performed upon individual items.

11.2.10 CORRECTIVE ACTION (10 CFR 72.172)

For the construction phase of "designated NSR" components, any discrepancies discovered by the inspector or contractor of CCNPP will be resolved by reworking the item to comply with drawing or specification requirements; or by documenting and resolving the discrepancy in accordance with the construction specification; or by accepting the discrepancy "as-is" and documenting the resolution by an engineering evaluation; or by scrapping the item.

In the case of a significant condition adverse to quality, measures are established to ensure that the cause of the condition is determined and corrective action is taken to preclude repetition. The identification of the significant condition adverse to quality, the cause of the condition, and the corrective action taken must be documented and reported to the appropriate levels of management in accordance with CCNPP's Nuclear Program.