

**CERTIFICATE OF COMPLIANCE
FOR SPENT FUEL STORAGE CASKS**

The U.S. Nuclear Regulatory Commission is issuing this certificate of compliance pursuant to Title 10 of the Code of Federal Regulations, Part 72, "Licensing Requirements for Independent Storage of Spent Nuclear Fuel, High-Level Radioactive Waste, and Reactor-Related Greater Than Class C Waste" (10 CFR Part 72). This certificate is issued in accordance with 10 CFR 72.238, certifying that the storage design and contents described below meet the applicable safety standards set forth in 10 CFR Part 72, Subpart L, and on the basis of the Final Safety Analysis Report (FSAR) of the cask design. This certificate is conditional upon fulfilling the requirements of 10 CFR Part 72, as applicable, and the conditions specified below.

Certificate No. 1007	Effective Date (Certificate) 05/07/93	Expiration Date (Initial Issue) 05/07/2013	Docket No. 72-1007	Amendment No. 5	Amendment Effective Date 09/13/2005	Package Identification No. USA/72-1007
	Renewed Effective Date 09/20/2017	Renewed Expiration Date 05/07/2053		Revision No. 0	Revision Effective Date N/A	

Issued To: (Name/Address)

EnergySolutions
2105 South Bascom Ave., Suite 230
Campbell, CA 95008

Safety Analysis Report Title

Final Safety Analysis Report for the VSC-24
Ventilated Storage Cask System

APPROVED SPENT FUEL STORAGE CASK

Model No.: Ventilated Storage Cask (VSC-24)

Description:

The VSC-24 system and its analyses and operations are described in the Pacific Sierra Nuclear Associates, Safety Analysis Report for the Ventilated Storage Cask System (SAR) (Docket 72-1007). The Nuclear Regulatory Commission (NRC) has reviewed the SAR as documented in the Safety Evaluation Reports (SERs) for each Certificate of Compliance amendment.

The VSC-24 is a vertical cask system composed of a steel multi-assembly sealed basket (MSB) and a ventilated concrete cask (VCC). The welded MSB provides confinement and criticality control for the storage and transfer of irradiated fuel. The VCC provides radiation shielding, while allowing cooling of the MSB and fuel by natural convection during storage.

The MSB consists of a steel cylindrical shell, sealed at the bottom end with a welded steel plate and at the top end with a welded steel shield lid and welded steel structural lid. The shell length is fuel-specific. The internal MSB fuel basket is designed to hold 24 pressurized water reactor (PWR) fuel assemblies. The steel basket is a welded structure consisting of 24 square storage locations. Each storage location encloses one irradiated fuel assembly. Support in the horizontal direction is provided by supports located at each end and the center of the basket assembly. The basket aids in the insertion of the fuel assemblies, enhances subcriticality during loading operations, and provides structural support during a hypothetical drop accident.

The MSB is shielded, supported, and protected by an MSB transfer cask (MTC) during fuel loading and MSB transfer operations. The MTC has hydraulically operated doors at the bottom, through which the MSB is passed into the top of the VCC.

**CERTIFICATE OF COMPLIANCE
FOR SPENT FUEL STORAGE CASKS**
Supplemental SheetCertificate No. 1007
Amendment No. 5, Rev. 0
Renewed Yes
Page 2 of 4

The fuel transfer and auxiliary equipment necessary for the Independent Spent Fuel Storage Installation operation are not included as part of the VSC-24 system approved by this Certificate of Compliance under 10 CFR Part 72, Subpart L. Such equipment may include, but is not limited to, special lifting devices, transfer trailers or equipment, and vacuum drying/helium leak test equipment.

The VCC is a reinforced concrete cask oriented as a right circular cylinder with an opening for the MSB at the top. The VCC also has openings for air flow. Four air inlets are located at the bottom and four air outlets are located at the top. The air inlets and outlets are protected from debris intrusion by wire mesh screens during storage operation. The internal cavity of the VCC, as well as inlets and outlets, are steel-lined. The inner and outer concrete reinforcement cages are formed by horizontal hoop and vertical hook bars. Additional concrete reinforcement is provided at the VCC bottom and around the openings. After the MSB is inserted, a shield ring is placed over the MSB/VCC annulus gap and a VCC weather cover is installed.

The basic components of the VSC-24 system, that are important to safety, are the MSB, VCC, and MTC. These components are described in Section 1.2 of the SAR.

CONDITIONS

1. HEAVY LOADS

Each lift of a loaded MSB within an MTC must be made in accordance with the existing heavy loads requirements and procedures of the licensed facility at which the lift is made. A plant-specific safety review (in accordance with 10 CFR 50.59 or 10 CFR 72.48, if applicable) is required to show operational compliance with existing plant-specific heavy loads requirements.

2. QUALITY ASSURANCE

Activities in the areas of design, procurement, fabrication, assembly, inspection, testing, operation, maintenance, repair, modification of structures, systems and components that are important to safety shall be conducted in accordance with a Commission-approved quality assurance program which satisfies the applicable requirements of 10 CFR Part 72, Subpart G or 10 CFR Part 50, Appendix B.

3. OPERATING PROCEDURES

Written operating procedures shall be prepared for cask handling, loading, movement, surveillance, and maintenance. The user's site-specific written operating procedures shall be consistent with the generic operating procedures described in the SAR and the attached Conditions for Cask Use and Technical Specifications.

4. AUTHORIZATION

Casks authorized by this certificate are hereby approved for use by holders of 10 CFR Part 50 and 10 CFR Part 52 licenses for nuclear power reactor sites under the general license issued pursuant to 10 CFR 72.210, subject to the conditions specified by 10 CFR 72.212 and the attached Conditions for Cask Use and Technical Specifications.

**CERTIFICATE OF COMPLIANCE
FOR SPENT FUEL STORAGE CASKS**
Supplemental SheetCertificate No. 1007
Amendment No. 5, Rev. 0
Renewed Yes
Page 3 of 4

5. RENEWAL

i. 72.212 EVALUATIONS FOR RENEWED COC USE

Any general licensee that initiates spent fuel dry storage operations with the VSC-24 storage system after the effective date of the renewal of the CoC and any general licensee operating VSC-24 storage systems as of the effective date of the renewal of the CoC, including those that put additional VSC-24 SSCs into service after that date, shall:

- a. as part of the evaluations required by 10 CFR 72.212(b)(5), include evaluations related to the terms, conditions, and specifications of this CoC amendment as modified (i.e., changed or added) as a result of the renewal of the CoC;
- b. as part of the document review required by 10 CFR 72.212(b)(6), include a review of the FSAR changes resulting from the renewal of the CoC and the NRC Safety Evaluation Report related to the renewal of the CoC; and
- c. ensure that the evaluations required by 10 CFR 72.212(b)(7) and (8) capture the evaluations and review described in (a.) and (b.) of this CoC condition.

ii. FSAR UPDATE FOR RENEWED COC

The CoC holder shall submit an updated FSAR to the Commission, in accordance with 10 CFR 72.4, within 90 days after the renewal of the CoC has been approved by the Commission. The updated FSAR shall reflect the changes and CoC holder commitments resulting from the review and approval of the renewal of the CoC. The CoC holder shall continue to update the FSAR pursuant to the requirements of 10 CFR 72.248.

iii. OPERATING PROCEDURES FOR SYSTEMS IN SERVICE LONGER THAN 20 YEARS

The general licensee (i.e., the user) that operates VSC-24 storage system SSCs for more than 20 years shall establish, implement, and maintain written procedures for each aging management program (AMP), including the lead cask inspection program, described in Section 9.3.3, "Aging Management Program" of the FSAR. The procedures shall be consistent with the AMP descriptions in the FSAR and shall include provisions for changing AMP elements as necessary and within the limitations specified in other CoC conditions and technical specifications to address new information on aging effects that is derived from the results of AMP inspections and/or industry operating experience. Each procedure shall contain a reference to the specific aspect of the AMP element implemented by that procedure, and that reference shall be maintained even if the procedure is modified.

The general licensee shall establish and implement these written procedures within 300 days of the effective date of the renewal of the CoC or 300 days of the 20th anniversary of the loading of the first cask at its site, whichever is later. The general licensee shall maintain these written procedures for as long as the general licensee continues to operate VSC-24 storage system SSCs that have been in service for longer than 20 years.

**CERTIFICATE OF COMPLIANCE
FOR SPENT FUEL STORAGE CASKS**
Supplemental Sheet

Certificate No. 1007
Amendment No. 5, Rev. 0
Renewed Yes
Page 4 of 4

iv. AMENDMENTS FOR RENEWED CoC

All future amendments to this CoC shall also include evaluations of the impacts of the changes in the amendment on aging management activities for the VSC-24 storage system, modifying the TLAAs and AMPs, including the lead cask inspection program, accordingly.

v. PERIODIC TOLLGATE ASSESSMENTS

The general licensee shall perform and maintain records of periodic tollgate assessments as part of the 'Operating Experience' element of each AMP, including the lead cask inspection program, that are consistent with the general description of the assessment elements and report contents in Section 9.3.5, "Periodic Tollgate Assessments" of the FSAR.

vi. ADDITIONAL DESIGN CONDITIONS FOR RENEWED COC

As of the effective date of the renewal of the CoC, the following conditions apply to the VSC-24 design feature alternatives:

- a. The galvanized steel grate described in Note 6 of FSAR Drawing No. VCC-24-002 may not be used on any new or currently in service VSC-24 VCCs.
- b. The fiberglass screen material for the air outlet screens listed in Note 4 of FSAR Drawing No. VCC-24-004 may not be used on any new or currently in service VSC-24 VCCs after the VCC has reached an in-service life of 20 years.

6. Effective Date: May 7, 1993

Expiration Date: May 7, 2013

7. Renewal Effective Date: September 20, 2017

Renewal Expiration Date: May 7, 2053

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/

John McKirgan, Chief
Spent Fuel Licensing Branch
Division of Spent Fuel Management
Office of Nuclear Material Safety
and Safeguards

Attachment: Conditions for Cask Use and
Technical Specifications

Dated: August 30, 2017