71-9001

CHEM-NUCLEAR SYSTEMS, LLC

140 Stoneridge Drive • Columbia, South Carolina 29210 • (803) 256-0450

14 July, 2000

579-104-00

E. William Brach
Director, Spent Fuel Project Office
Office of Nuclear Material Safety and Safeguards, NMSS
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Dear Mr. Brach:

SUBJ: APPLICATION FOR RENEWAL OF CERTIFICATE OF COMPLIANCE FOR THE IF-300 CASK, NO. 9001

Chem-Nuclear Systems requests the renewal of Certificate of Compliance No. 9001 for the IF-300 cask per 10 CFR 71.38. The current Certificate of Compliance expires on September 30, 2000.

After careful review of operating procedures, acceptance tests, and maintenance programs, we are requesting a change to the Consolidated Safety Analysis Report (CSAR). The change pertains to the requirement for the use of lockwire on the cask head sleeve nuts found in both Chapters 9 and 10 of Volume 1 of the CSAR. No other changes are requested.

The current lockwire requirement was intended to provide indication that the cask was not opened by unauthorized persons. The regulatory requirement found in 10CFR 71.43 for a feature indicating whether a package has been opened can be met by use of a tamper indication device, such as a security seal, on one or more of the cask head sleeve nuts. Placing lockwire on all the sleeve nuts, as is currently required by CSAR Chapter 9, Section 9.3, is time-consuming and results in unnecessary dose to the worker placing the lockwire. Placing lockwire on the sleeve nuts is not necessary to prevent loosening of the sleeve nuts since the torque on the nuts prevents them from backing off. We request approval to remove the lockwire requirement and replace it with a requirement to install "at least two security seals".

Attached are two double-sided pages with the requested wording changes noted below. The first sentence on page 9-5 is changed to read, *" At least two (2) security seals will be installed on sleeve nuts prior to shipment."* Step 10.1.1.9b on page 10-3 is changed to read, "After metal-to-metal contact ... cask flanges, *at least two security seals are installed on head sleeve nuts."* (Requested changes are shown in Italics for clarity only in this cover letter.) Please replace the current pages, 9-5&6 and 10-3&4, with the attached replacement pages.

Should you or the members of your staff have any questions concerning this application, please telephone Mr. Mark Whittaker at (803) 758-1898.

Sincerely,

Patrick L. Paquin
General Manager, HLW and Spent Fuel Services

Attachement:
Replacement Pages 9-5&6 and 10-3&4

NMSS01Public

At least two (2) security seals will be installed on sleeve nuts prior to shipment. In addition enclosure access doors and panels are locked during transit.

Under the normal shipping conditions, the nearest accessible surface temperature remains below the 180°F limit.

9.4 BASIC COMPONENTS (SAFETY Related)

Certain components and structures of the IF-300 casks are safety related and as such are identified as Basic Components. Basic Components of the IF-300 are listed in Table IX-1 according to their nuclear functions which are a) containment of radioactive material within 10CFR71 limits, b) nuclear shielding, and c) criticality control. IF-300 Basic Components are designed, fabricated, assembled, tested, used and maintained under an NRC approved quality assurance program that satisfies the requirements in 10CFR71 Subpart H, "Quality Assurance".

Table IX-1
IF-300 BASIC COMPONENTS
(Safety Related)

I. CONTAINMENT

- Cavity End Plate
- Inner Shell
- Vent Pipe Assembly
- Locating Key
- Body Flange
- PWR Head Forging
- PWR Head Subassembly
- BWR Head Forging
- BWR Head Liner
- Trunnion Assembly
- Valve Boxes
- BWR Head End Plate
- BWR Head Liner Ring
- BWR Sleeve Nuts
- PWR Sleeve Nuts
- Studs
- Cavity Globe Valves
- Valve Pipe Cap or Plugs
- Valve Hardware
- Grayloc Seal Ring
- Fins
- Cavity Drain Line Assembly
- Rupture Disk Device

II. NUCLEAR SHIELDING

Uranium shield (cask barrel, closure head, bottom; basket shield), Neutron shield (corrugated barrel, valve boxes, expansion tank, piping, valves, blind flanges, liquid.)

III. CRITICALITY CONTROL

BWR Baskets
PWR Basket

c. The cask is slowly raised while monitoring radiation levels) until the top of the cask reaches the level of the fuel pool curb.
d. Four cask closure head sleeve nuts are installed, hand tight.
e. The cask is removed from the pool (while again monitoring radiation levels), washed, and placed in the preparation area.

10.1.1.9 Securing the Cask Closure Head

a. Parallelism of the head and cask flanges is tested and the head sleeve nuts are torqued to 370 ft-lbs minimum.
b. After metal-to-metal contact (.007 inch gap or less) is achieved between the head and cask flanges, at least two security seals are installed on head sleeve nuts.

10.1.1.10 Flushing of the Cask Inner Cavity

a. When desired, the cask inner cavity may be flushed with demineralized water until sample analysis conforms with pre-determined limits. This step is not mandatory.

10.1.1.11 Draining of the Cask Inner Cavity

a. A pressure regulated helium supply is connected to the cask cavity vent valve.
b. A drain hose is connected to the cask cavity fill/drain valve and directed into a radwaste drain or back into the pool.
c. After opening the cask cavity vent and fill/drain valves, helium is introduced through the vent valve at 15 psig.
d. When helium is observed to flow out of the cask cavity drain hose, the fill/drain valve is closed and the cask cavity pressurized to 15 psig.
e. The drain hose is removed.
f. The cask cavity vent valve is closed and the helium supply removed.

10.1.1.12 Assembly Verification Leakage Testing

a. Leakage testing of the cask closure seal, vent valve, fill/drain valve, and rupture disk device is performed with a thermal conductivity sensing instrument. This type of instrument is sensitive to any gas stream having a thermal conductivity different from the ambient air in which the instrument is being used.
b. The test instrument is set up and used according to written procedures and the manufacturer's instructions.
c. With the instrument calibrated to a sensitivity of at least 2×10^{-1} cm^3/sec (helium, the vent valve, fill/drain valve, and rupture disk device are checked for indications of leakage.

d. With the instrument calibrated to a sensitivity of at least 2 x 10^{-2} cm^3/sec (helium), the closure seal is checked for indications of leakage. (The sensitivity of this test is increased to account for the dilution which would occur between a potential point of closure seal leakage and the nearest point of measurement.)
e. If leakage is detected during either of the above checks, the offending components are repaired or replaced and then re-tested for leakage.
f. Valve must be checked to be open if pipe cap or plugs are used.

10.1.1.13 Preparing the cask for Transport of Irradiated Fuel

a. Steps 10.1.1.11a thru c are repeated. Nitrogen may be used to supply the third cask volume of inert gas.
b. The supply of helium (nitrogen) is discontinued when at least one additional cask volume has been supplied to the inner cavity. (One cask volume equals 83 cubic feet when shipping irradiated fuel.)
c. the excess helium (nitrogen) within the inner cavity is bled off thru the fill/drain valve until the cavity pressure has decayed to 0 psig. This completes the process of inerting the cask cavity.
d. The vent and fill/drain valve is closed and the connecting hoses and gages are removed.
e. The cask, skid, and rail car are decontaminated in accordance with regulatory requirements.
f. The cask is lifted with the yoke, positioned on the tilting cradle, and lowered to its horizontal position.
g. The yoke is removed.
h. The trunnions are removed and the cask tiedown pins installed.
i. The valve box covers are replaced.
j. The radiological survey of the cask and rail car is completed.

10.1.1.14 Preparing the Cask for Transport of Irradiated Hardware

a. A drain hose is connected to the cask cavity fill/drain valve and directed into a radwaste drain or back into the pool.
b. Steps 10.1.1.13c thru j are repeated.

10.1.1.15 Closing the Equipment Skid

a. The cask enclosures are closed, locked, and sealed.

10.1.2 Procedures for Unloading the Package

Operations at the unloading facility are largely the same as loading operations with the major exception being the increased radiological awareness required for receiving a loaded cask. Each unloading facility must provide fully trained personnel and detailed operating procedures to cover all activities.