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E12468



CONNECTICUT YANKEE ATOMIC POWER COMPANY

HADDAM NECK PLANT

362 INJUN HOLLOW ROAD • EAST HAMPTON, CT 06424-3099

application

October 15, 2003

CY-03-138

Ref. 49CFR107 & 49CFR173

Exemption No. 12468

Associate Administrator for Hazardous Materials Safety
Research and Special Programs Administration
Attention: Exemptions, DHM-31
400 7th Street, SW
Washington, D.C. 20590-0001

Haddam Neck Plant
Request for Modification of Exemption for the
Shipment of Reactor Pressure Vessel

In our previous letter of August 29, 2003, Connecticut Yankee Atomic Power Company (CYAPCO) requested a modification of DOT Exemption DOT-E 12468, First Revision, issued on July 10, 2002, to reflect: (a) additional changes in the configuration of the Reactor Vessel Transport System (RVTS) and associated technical data, (b) changes in project management and reactor pressure vessel (RPV) transport-related responsibilities, and (c) changes in the projected date of shipment and the expiration date of the exemption certificate.

This letter supplements CYAPCO's letter of August 29, 2003 by identifying additional changes in the configuration of the RVTS and associated technical data that are occurring as a result of ongoing RVTS construction. Specifically, recent placements of the concrete grout layer (first two lifts) external to the RPV (in the annular region between the RPV and the RPV container) have resulted in actual grout densities in this region that are somewhat higher than earlier predicted. The higher density grout may, in turn, result in a RVTS that is heavier than that earlier indicated. These changes and their resultant impact on package handling, drop analysis, and external radiation levels are summarized as follows:

- **Concrete grout strength and density** – In the Revised Compliance Matrix (Enclosure 1) of the August 29, 2003 submittal, the concrete grout in the annular space between the reactor vessel and the Canister was indicated to have a nominal strength of 1,000 psi and a nominal density of 70 lb/ft³. Based on construction experience to date, the nominal strength is expected to be in the range of 2000 psi. While the remainder of the grout to be placed in the annular region of the RPV package is expected to have a nominal density of 70 lb/ft³, experience indicates densities as high as 95 lb/ft³ may be possible.
- **Canister weight** – In Section 1.2.3 (Package) of the revised addendum to the Transport System Description Report, TSDR (Enclosure 2) of the August 29, 2003 submittal, the weight of the Canister with its contents, including grout, was indicated to be about 700 tons. Based on the grout density achieved within the annulus region of the package to date, and the remaining grout placement activities, the maximum weight of the Canister may approach 740 tons.
- **Center of gravity** – In Figure 2 (RPV/Cradle Assembly) of the revised addendum to the TSDR of the August 29, 2003 submittal, the Center of Gravity (CG) of the package was depicted as being 93.4 inches from the inner face of the saddle. Based on changes in the density parameters described above (grout densities and RPVP weight), this position of the CG could potentially shift as much as 3 inches toward the bottom of the package. This repositioning of the CG is in a favorable direction toward the center of the saddles of the cradle assembly.
- **Free drop analysis** – Using the changes in package weight and CG indicated above, the analysis assumptions for the free drop (impact) and slap down loadings under 49 CFR 173.465(c), as per 49 CFR 173.411(b), remain valid (cf. Section 3.2 of the revised addendum of the TSDR of the August 29, 2003 submittal).
- **Package handling and transport** – The potential package weight increase is not a concern for handling and transport since it is well within the original weight of the RPV with RPV head, the total of which (about 800 tons) was the basis for the selection and design of the rigging, saddle and tie down configurations for transport.
- **External dose rates** – Higher concrete grout densities are favorable in that they result in lower dose rates exterior to the package.

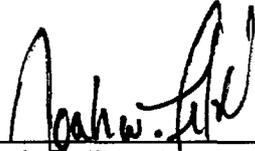
On the basis of the above summary, CYAPCO affirms that the physical changes identified for the RPV package fall within a parameter range that ensures regulatory compliance while continuing to facilitate safe package handling and transport. Accordingly, the technical bases on which the August 29, 2003 request for exemption modification was presented remain valid.

Associate Administrator for Hazardous Materials Safety
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Should you have any questions regarding this letter, or need any additional information, please contact Mr. G. P. van Noordennen, Manager of Regulatory Affairs, at (860) 267-3938.

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Sincerely,



Noah Fetherston
Director of Decommissioning

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