72-1004

TRANSNUCLEAR

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Ms. Mary Jane Ross-Lee
Spent Fuel Project Office, NMSS
U. S. Nuclear Regulatory Commission
11555 Rockville Pike M/S O13-D-13
Rockville, MD 20852

Subject: Submittal of Corrected Pages of Revision 4 of Application for Amendment No. 5 to the NUHOMS® Certificate of Compliance No. 1004 (TAC NO. L23343).

Reference: 1. Revision 4 of Application for Amendment No. 5 to the NUHOMS® Certificate of Compliance No. 1004, Submitted January 24, 2002.

Dear Ms. Ross-Lee:

Enclosed herewith are 13 sets of corrected pages which address a pagination error in Chapter M.2 and a minor omission in updating page M.8-6 of Chapter M.8 of Reference 1. Also included herewith is a revised Table of Contents for Appendix M, Revision 4.

Please replace the affected pages of Reference 1 with the corrected pages enclosed herewith.

Should you or your staff require additional information to support review of this application, please do not hesitate to contact me at 510-744-6053.

Sincerely,

UB Chopra

U. B. Chopra

Licensing Manager

Docket 72-1004

Enclosures: As Stated

NMSS01

ATTACHMENT C

List of Changed Appendix M Pages

- *M.2-2*
- *M.2-2a (New Page)*
- *M.2-11*
- *M.2-12*
- *M.2-40 through M.2-42*
- *M.3.1-2*
- *M.3.1-2a (New Page)*
- *M.3.1-7*
- *M.4 (Entire Section)*
- *M.8-6*

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g/cm^2. The criticality analysis is based on 90% credit or 0.0063 g/cm^2 of B10. The use of 90% credit is allowed because poison material coupons are to be tested via neutron transmission plus statistical analysis of the neutron transmission results.

For calculating the maximum internal pressure in the NUHOMS®-32PT DSC, it is assumed that 1% of the fuel rods are damaged for normal conditions, up to 10% of the fuel rods are damaged for off normal conditions, and 100% of the fuel rods will be damaged following a design basis accident event. A minimum of 100% of the fill gas and 30% of the fission gases (e.g., H-3, Kr and Xe) within the ruptured fuel rods are assumed to be available for release into the DSC cavity, consistent with NUREG-1536 [2.1].

The maximum design basis internal pressures for the NUHOMS®-32PT DSC are 15, 20 and 105 psig for normal, off-normal and accident conditions of storage, respectively.

M.2.5 Summary of NUHOMS®-32PT DSC Design Criteria

The additional principal design criteria for the NUHOMS®-32PT DSC are presented in Table M.2-19. The NUHOMS®-32PT DSC is designed to store 32 intact standard PWR fuel assemblies with or without BPRAs with assembly average burnup, initial enrichment and cooling time as described in Table M.2-1. The maximum total heat generation rate of the stored fuel is limited to 1.2 kW per fuel assembly and 24 kW per NUHOMS®-32PT DSC in order to keep the maximum fuel cladding temperature below the limit [2.7]necessary to ensure cladding integrity. The fuel cladding integrity is assured by the NUHOMS®-32PT DSC and basket design which limits fuel cladding temperature and maintains a nonoxidizing environment in the cask cavity as described in Section M.4.

The NUHOMS®-32PT DSC (shell and closure) is designed and fabricated as a Class 1 component in accordance with the rules of the ASME Boiler and Pressure Vessel Code, Section III, Subsection NB, and the alternative provisions to the ASME Code as described in Table M.3.1-1.

The NUHOMS®-32PT DSC is designed to maintain a subcritical configuration during loading, handling, storage and accident conditions. A combination of fixed neutron absorbers, soluble boron in the pool and favorable geometry are employed to maintain the upper subcritical limit of 0.9411. The fixed neutron absorbers are in the form of borated metallic plates and PRAs which are inserted in the guide tubes of certain assemblies in the basket. The basket is designed and fabricated in accordance with the rules of the ASME Boiler and Pressure Vessel Code, Section III, Subsection NG, Article NG-3200 and the alternative provisions to the ASME Code as described in Table M.3.1-1.

The NUHOMS®-32PT DSC design, fabrication and testing are covered by TN's Quality Assurance Program, which conforms to the criteria in Subpart G of 10CFR72.

The NUHOMS®-32PT DSC is designed to withstand the effects of severe environmental conditions and natural phenomena such as earthquakes, tornadoes, lightning and floods. Section M.11 describes the NUHOMS®-32PT DSC behavior under these accident conditions.

M.2.6 References

2.1 NUREG-1536, "Standard Review Plan for Dry Cask Storage Systems," 1997.

2.2 American Society of Mechanical Engineers, ASME Boiler And Pressure Vessel Code, Section III, Division 1 - Subsections NB, NG and NF, 1998 edition including 2000 Addenda.

2.3 Young, W.C., "Roark's Formulas for Stress and Strain," 6th Edition, McGraw-Hill Book Company, New York, 1989.

2.4 ANSI N14.5-1997, "Leakage Tests on Packages for Shipment," February 1998.

2.5 Deleted.

2.6 Deleted.

2.7 Interim Staff Guidance No. 11, Revision 2, "Cladding Considerations for the Transportation and storage of Spent Fuel", dated July 30, 2002.

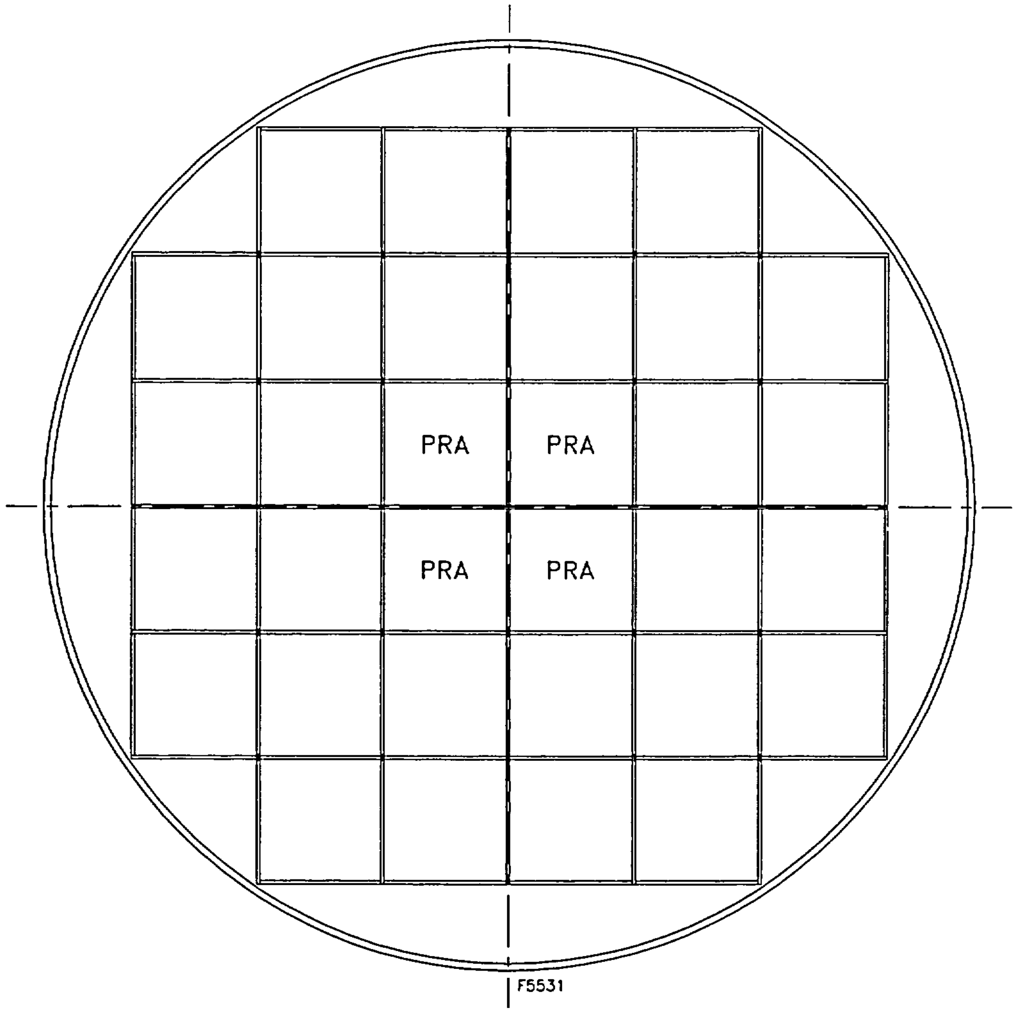
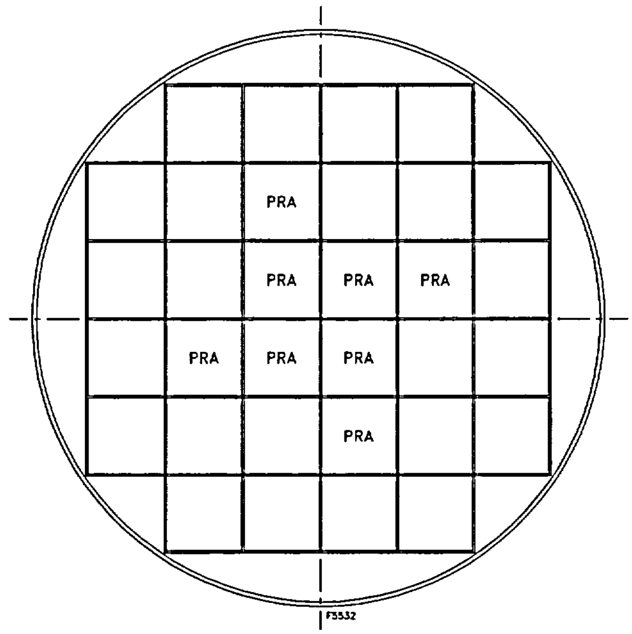


Figure M.2-4
Required PRA Locations for Configurations with Four PRAs



OR

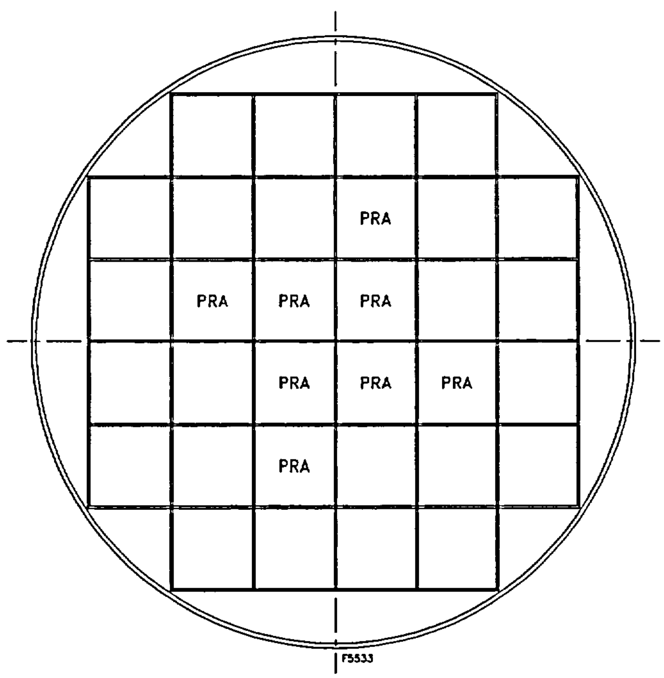


Figure M.2-5
Required PRA Locations for Configurations with Eight PRAs

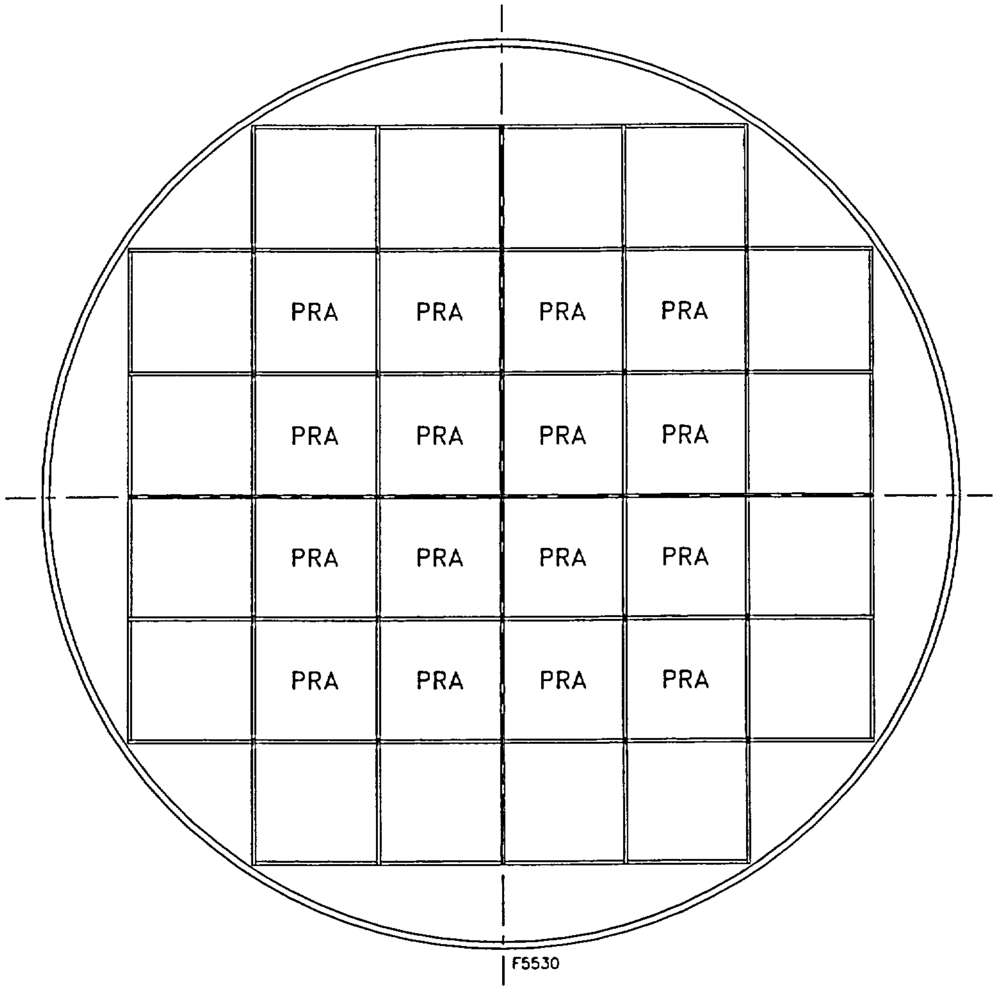


Figure M.2-6
Required PRA Locations for Configurations with Sixteen PRAs

cutting/welding operations. Verify that the measured hydrogen concentration does not exceed a safety limit of 2.4% [8.4]. If this limit is exceeded, stop all welding operations and purge the DSC cavity with 2-3 psig helium (or any other inert medium) via the 1/4 inch tygon tubing to reduce the hydrogen concentration safely below the 2.4% limit.

12. Perform dye penetrant weld examination of the inner top cover plate weld in accordance with the Technical Specification 1.2.5 requirements.

13. Connect the VDS to the DSC siphon and vent ports.

14. Install temporary shielding to minimize personnel exposure throughout the subsequent welding operations as required.

15. Engage the compressed air, nitrogen or helium supply and open the valve on the vent port and allow compressed gas to force the water from the DSC cavity through the siphon port.

16. Once the water stops flowing from the DSC, close the DSC siphon port and disengage the gas source.

17. Connect the hose from the vent port and the siphon port to the intake of the vacuum pump. Connect a hose from the discharge side of the VDS to the plant's radioactive waste system or spent fuel pool. Connect the VDS to a helium source.

18. Open the valve on the suction side of the pump, start the VDS and draw a vacuum on the DSC cavity. The cavity pressure should be reduced in steps of approximately 100 mm Hg, 50 mm Hg, 25 mm Hg, 15 mm Hg, 10 mm Hg, 5 mm Hg, and 3 mm Hg. After pumping down to each level, the pump is valved off and the cavity pressure monitored. The cavity pressure will rise as water and other volatiles in the cavity evaporate. When the cavity pressure stabilizes, the pump is valved in to complete the vacuum drying process. It may be necessary to repeat some steps, depending on the rate and extent of the pressure increase. Vacuum drying is complete when the pressure stabilizes for a minimum of 30 minutes at 3 mm Hg or less as specified in Technical Specification 1.2.2.

    Caution: The vacuum drying step for 32PT DSC must meet the time duration limits of Technical Specification 1.2.17a.

19. Open the valve to the vent port and allow the helium to flow into the DSC cavity.

20. Pressurize the DSC with helium to about 24 psia not to exceed 34 psia.

21. Helium leak test the inner top cover plate weld for leakage in accordance with ANSI N14.5 to a sensitivity of 1×10^{-5} atm cm^3 /sec.

22. If a leak is found, repair the weld, repressurize the DSC and repeat the helium leak test.

23. Once no leaks are detected, depressurize the DSC cavity by releasing the helium through the VDS to the plant's spent fuel pool or radioactive waste system.