



October 2, 2008
Non-Proprietary Version

The Honorable Dale E. Klein
Chairman, United States Nuclear Regulatory Commission
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555-0001

Reference: Letter from B&W to NRC dated December 13, 2007, Notice of Intent to Submit an Application to License and Operate a Medical Isotope Production System

Dear Chairman Klein:

In the above referenced letter, Babcock and Wilcox (B&W) notified NRC of our intent to license and operate a Medical Isotopes Production System (MIPS) []
This system will provide a dedicated, reliable, and sustainable domestic supply of ⁹⁹Mo. The use of low enriched uranium (LEU) for the fuel/target solution will support a key non-proliferation objective of the United States.

Prior to sending the notice of intent, we informed the Commissioners of the project and met with your staff to provide conceptual design and licensing information. As you recall from those discussions, the MIPS is a small aqueous homogeneous reactor (AHR) that operates at very low power using LEU solution as the reactor fuel. After short irradiation cycles the LEU fuel is withdrawn from the reactor and ⁹⁹Mo is extracted from the solution. The LEU fuel is then reused to fuel the reactor for subsequent cycles.

In our initial discussions and in the referenced letter, we stated that we believed there were decisions that are key to the success of the project that would need to be made by the Commission before we can complete our license application. We have identified two such issues and are providing detailed recommendations to your staff for consideration. These issues are summarized below.

1. A Commission decision is needed for classification of radioactive wastes from the MIPS operations as low level waste (LLW) for disposal. Two of the waste streams generated from the MIPS, the liquid waste from periodic cleanup of the liquid fuel and ultimately the used liquid fuel itself, are in question with regards to their classification as LLW. Based on our preliminary design information, these waste streams will meet the classification criteria of 10 CFR 61 and would be suitable for shallow land disposal. However, the ambiguity within the definitions of low and high level waste must be resolved by the Commission before the material can be considered LLW.

2. Current licensing experience with non-power reactors under 10 CFR 50 has been primarily for Class 104 facilities for research and development purposes. The MIPS will be a non-power reactor whose primary purpose is not research and development and will likely be a Class 103 license. B&W believes the licensing processes for non-power reactors should be applied to MIPS regardless of the classification. Further, B&W believes the MIPS facility (reactor and separation facility) can be included under a single 10 CFR 50 license with incorporation of requirements from 10 CFR 70 for the non-reactor parts of the facility.

Thank you for your consideration. We look forward to interactions with your staff on these on these matters and request a timely review and decision. If you have questions, please contact me at 434-522-6806 or our MIPS Program Manager, Evans Reynolds, at 434-522-6439.

Sincerely,

[signature on file with proprietary letter]

S. Robert Cochran,
President, B&W Technical Services Group. Inc.

Attachment: Affidavit for with withholding information under 10 CFR 2.390 [Not attached to non-proprietary version]

cc: Gregory B. Jaczko, Commissioner
Peter B. Lyons, Commissioner
Kristine L. Svinicki, Commissioner
R. William Borchardt, Executive Director of Operations