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U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

ATTENTION: T. R. QUAY

SUBJECT: USE OF ASME CODE, SECTION VIII TANKS IN EMERGENCY
HABITABILITY SYSTEM

In a recent discussion of open items and questions related to the main control room emergency habitability system, the staff asked for additional information on the justification for the use of ASME Code, Section VIII criteria instead of Section III for construction of the air storage tanks in this system. The attached write-up provides the justification for the use of Section VIII. The conclusion is that ASME Code, Section VIII is the appropriate criteria for the construction of these tanks.

If you have any additional questions, please call D. A. Lindgren on (412) 374-4856.

Brian A. McIntyre, Manager
Advanced Plant Safety and Licensing

/nja

Attachment

cc: W. C. Huffman, NRC
N. J. Liparulo, Westinghouse

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ATTACHMENT TO NTD-NRC-95-4574

Justification of the use of ASME Code, Section VIII for air storage tanks in the AP600 main control room emergency habitability system.

The function of the air tanks in the AP600 emergency habitability system is to store air under pressure. Other components in the system are relied upon to provide for over pressure protection and maintain minimum pressure. The following is the basis for the use of ASME Code Section VIII.

1. The NRC previously has accepted use of Section VIII tanks in this type of application. Millstone Unit 3 uses Section VIII tanks to pressurize the control room in accident conditions. See Millstone Nuclear Power Station Unit 3 Final Safety Analysis Report Table 6.4-1.
2. Written NRC requirements and guidance (10 CFR 50.55a and Regulatory Guide 1.26) address the use of ASME Code, Section III only for systems containing water and steam.
3. The tanks are passive components for which loads due to plant operating transient and abnormal events are negligible and do not have to be considered. Seismic loads are addressed in the design of the supporting structure.
4. Section VIII requirements provide appropriate quality assurance to address fabrication and material procurement controls. Section VIII gas storage tanks are used in a wide range of applications, including transportation and storage in the chemical and petroleum industries, in which industrial safety is an important requirement. The Section VIII limits on working pressure provide an appropriate safety margin.
5. Fabrication of the air tanks does not include any welding. Control of welding processes is not a consideration. Section VIII includes specific requirements (mandatory Appendix 22) for integrally forged vessels of the type used as gas storage tanks. Section III focuses on welded construction and does not include similar specific requirements for integrally forged vessels.
6. There are a number of suppliers with experience and expertise in fabricating air storage tanks as Section VIII vessels. The number of suppliers with expertise building air storage tanks of the design planned for AP600 as Section III vessels is limited (or nonexistent).

Based on the information outlined above, the use of ASME Code, Section VIII, Division 1 is a more appropriate set of requirements for the design and fabrication of air storage tanks than are the requirements in Section III. Use of Section VIII appears to provide an integrally forged air storage tank that has a level of safety that is at least equivalent to a tank designed to the minimum requirements of Section III.

A formal analysis is not required to use ASME Code, Section VIII as the design basis for the air storage tanks. Westinghouse will respond to specific questions from the staff on the application of Section VIII requirements to the design of air storage tanks and the design requirements for the air storage tanks in the main control room emergency habitability system.