

"Justification for the Elimination of the Post Accident Sampling System (PASS) from the Licensing Basis of Babcock and Wilcox-Designed Plants." The NRC staff's safety evaluation for the BWOG topical report is dated November 14, 2002 (ADAMS Accession Number ML022560119). The BWOG proposed elimination of the PASS requirements from the standard technical specifications by submitting TSTF-442.

In the aftermath of the accident at Three Mile Island (TMI), Unit 2, the Nuclear Regulatory Commission (NRC) imposed requirements on licensees for commercial nuclear power plants to install and maintain the capability to obtain and analyze post-accident samples of the reactor coolant and containment atmosphere. The desired capabilities of the Post Accident Sampling System (PASS) were described in NUREG-0737, "Clarification of TMI Action Plan Requirements." The NRC issued orders to licensees with plants operating at the time of the TMI accident to confirm the installation of PASS capabilities (generally as they had been described in NUREG-0737). A requirement for PASS and related administrative controls was added to the technical specifications (TS) of the operating plants and was included in the initial TS for plants licensed during the 1980s and 90s. Additional expectations regarding PASS capabilities were included in Regulatory Guide 1.97, "Instrumentation for Light-Water-Cooled Nuclear Power Plants To Assess Plant and Environs Conditions During and Following an Accident."

Significant improvements have been achieved since the TMI accident in the areas of understanding risks associated with nuclear plant operations and developing better strategies for managing the response to potentially severe accidents at nuclear plants. Recent insights about plant risks and alternate severe accident assessment tools have led the NRC staff to conclude that some TMI Action Plan items can be revised without reducing the ability of licensees to respond to severe accidents. The NRC's efforts to oversee the risks associated with nuclear technology more effectively and to eliminate undue regulatory costs to licensees and the public have prompted the NRC to consider eliminating the requirements for PASS in TS and other parts of the licensing bases of operating reactors.

The staff has completed its review of the topical report submitted by the Babcock and Wilcox Owners Group (BWOG) that proposed the elimination of PASS. The justifications for the proposed elimination of PASS requirements center on evaluations of

the various radiological and chemical sampling and their potential usefulness in responding to a severe reactor accident or making decisions regarding actions to protect the public from possible releases of radioactive materials. As explained in more detail in the staff's safety evaluations for the topical report, the staff has reviewed the available sources of information for use by decision-makers in developing protective action recommendations and assessing core damage. Based on this review, the staff found that the information provided by PASS is either unnecessary or is effectively provided by other indications of process parameters or measurement of radiation levels. The staff agrees, therefore, with the owners group that licensees can remove the TS requirements for PASS, revise (as necessary) other elements of the licensing bases, and pursue possible design changes to alter or remove existing PASS equipment.

2.0 Regulatory Evaluation

The ways in which the requirements and recommendations for PASS were incorporated into the licensing bases of commercial nuclear power plants varied as a function of when plants were licensed. Plants that were operating at the time of the TMI accident are likely to have been the subject of confirmatory orders that imposed the PASS functions described in NUREG-0737 as obligations. The issuance of plant specific amendments to adopt this change, which would remove PASS and related administrative controls from TS, would also supersede the PASS specific requirements imposed by post-TMI confirmatory orders.

The NRC staff prepared this model safety evaluation (SE) relating to the elimination of requirements on post accident sampling for B&W plants and solicited public comments in [insert FR number] in accordance with the CLIIP. The use of the CLIIP in this matter is intended to help the NRC to efficiently process amendments that propose to remove the PASS requirements from TS. Licensees of nuclear power reactors to which this model apply were informed that they could request amendments conforming to the model, and, in such requests, should confirm the applicability of the SE to their reactors and provide the requested plant-specific verifications and commitments.

3.0 Technical Evaluation

The technical evaluations for the elimination of PASS sampling requirements are provided in the safety evaluation dated November 14, 2002, for BWOG topical report BAW-2387. As

described in its safety evaluation for the topical report, the staff finds that the post-accident sampling requirements for the following may be eliminated for B&W plants:

1. Reactor coolant dissolved gases.
2. Reactor coolant hydrogen.
3. Reactor coolant oxygen.
4. Reactor coolant chlorides.
5. Reactor coolant pH.
6. Reactor coolant boron.
7. Reactor coolant conductivity.
8. Radionuclides in the reactor coolant.
9. Containment atmosphere hydrogen.
10. Containment atmosphere oxygen.
11. Radionuclides in the containment atmosphere.
12. Radionuclides in the containment sump.
13. Containment sump pH.
14. Chlorides in the containment sump.

15. Boron in the containment sump. PASS sampling of the above 15 parameters is specified in NUREG-0737 and RG 1.97. The sampling of the parameters are either not required to manage an accident and recover plant conditions, or not necessary due to redundancy in sampling capabilities. Based upon the detailed justifications provided in topical report BAW-2387 and its associated safety evaluation of November 14, 2002, the staff concludes that the proposals to eliminate PASS sampling of the above parameters is acceptable.

The staff concludes that sampling of radionuclides is not required to support emergency response decision making during the initial phases of an accident because the information provided by PASS is either unnecessary or is effectively provided by other indications of process parameters or measurement of radiation levels. Therefore, it is not necessary to have dedicated equipment to obtain this sample in a prompt manner.

The staff does, however, believe that there could be significant benefits to having information about the radioisotopes existing post-accident in order to address public concerns and plan for long-term recovery operations. As stated in the safety evaluation for the topical report, the staff has found that licensees could satisfy this function by developing contingency plans to describe existing sampling capabilities and what actions (e.g., assembling temporary shielding) may be necessary to obtain and analyze highly radioactive samples from the reactor coolant system (RCS), containment sump, and containment atmosphere. The use of the contingency plans for obtaining samples would depend on the plant conditions