Industry/TSTF Standard Technical Specification Change Traveler

Elimination of Requirements for a Post Accident Sampling System (PASS)

NUREGs Affected: ☑ 1430 ☐ 1431 ☐ 1432 ☐ 1433 ☐ 1434

Classification: 1) Technical Change Recommended for CLIIP?: Yes

Priority: 1)High

Simple or Complex Change: Complex

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1.0 Description

The proposed change brackets Specification 5.5.3, "Post Accident Sampling," and adds a Reviewer's Note to indicate that the program requirements may be eliminated based on the implementation of Topical Report BAW-2387, "Justification for the Elimination of the Post Accident Sampling System From the Licensing Bases of Babcock and Wilcox-Designed Plants," and the associated NRC safety Evaluation.

2.0 Proposed Change

The proposed change brackets Specification 5.5.3, "Post Accident Sampling," indicating that the program is optional based on plant licensing basis.

3.0 Background

Topical Report BAW-2387, "Justification for the Elimination of the Post Accident Sampling System From the Licensing Bases of Babcock and Wilcox-Designed Plants," evaluated the post accident sampling system (PASS) requirements to determine their contribution to plant safety and accident recovery. The topical report considered the progression and consequences of core damage accidents and assessed the accident progression with respect to plant abnormal and emergency operating procedures, severe accident management guidance, and emergency plans. The Topical Report concluded that the current PASS samples specified in NUREG-0737, "Clarification of TMI Action Plan Requirements," may be eliminated (i.e., remove the requirements to perform the sampling from the licensing basis).

Licensee's implementing BAW-2387 and the associated NRC Safety Evaluation may delete the program requirements of Section 5.5.3.

4.0 Technical Analysis

Topical Report BAW-2387, "Justification for the Elimination of the Post Accident Sampling System From the Licensing Bases of Babcock and Wilcox-Designed Plants," and the associated NRC safety Evaluation justifies this change.

With the elimination of PASS, plant specific TS Section 5.5.2, 'Primary Coolant Sources Outside Containment,' may also need to be revised. NUREG-1430, Rev. 2, Section 5.5.2, requires a program be established to minimize leakage from those portions of systems outside containment that could contain highly radioactive fluids during a serious transient or accident. Although NUREG-1430, Rev. 2, does not specifically call out Post Accident Sampling, plants may have Post Accident Sampling specified in Section 5.5.2. With the elimination of the Post Accident Sampling program, modifications may be performed such that the system is isolated and would no longer have the capability to contain highly radioactive fluids. Therefore, if Post Accident Sampling is isolated from the capability to contain highly radioactive fluids, it is acceptable to revise the plant specific TS Section 5.5.2 to eliminate the system from the Primary Coolant Sources Outside Containment program.

TS Section 5.4.1.b requires written procedures shall be established, implemented, and maintained covering (in part) the emergency operating procedures required to implement the requirements of NUREG-0737 and to NUREG-0737, Supplement 1, as stated in [Generic Letter 82-33]. NUREG-0737, Item I.C. 1, 'Guidance for the Evaluation and Development of Procedures for Transients and Accidents,' as clarified by Supplement 1 to NUREG-0737 required licensees to perform analyses of transients and accident, prepare emergency procedure guidelines, and upgrade emergency operating procedures. There may be actions specified in emergency operating procedures based on NUREG-0737 and NUREG-0737, Supplement 1 requirements. However, the intent of this specification is only for establishing, implementing, and maintaining emergency operating procedures. As such, elimination of a NUREG-0737 requirement, such as the elimination of the requirement for Post Accident Sampling, does not impact the TS requirement associated with emergency operating procedures.

5.0 Regulatory Analysis

5.1 No Significant Hazards Consideration

The TSTF has evaluated whether or not a significant hazards consideration is involved with the proposed generic change by focusing on the three standards set forth in 10 CFR 50.92, "Issuance of amendment," as discussed below:

1. Does the proposed change involve a significant increase in the probability or consequences of an accident previously evaluated?

   Response: No.

   The PASS was originally designed to perform many sampling and analysis functions. These functions were designed and intended to be used in post accident situations and were put into place as a result of the TMI-2 accident. The specific intent of the PASS was to provide a system that has the capability to obtain and analyze samples of plant fluids containing potentially high levels of radioactivity, without exceeding plant personnel radiation exposure limits. Analytical results of these samples would be used largely for verification purposes in aiding the plant staff in assessing the extent of core damage and subsequent offsite radiological dose projections. The system was not intended to and does not serve a function for preventing accidents and its elimination would not affect the probability of accidents previously evaluated. In the 20 years since the TMI-2 accident and the consequential promulgation of post accident sampling requirements, operating experience has demonstrated that a PASS provides little actual benefit to post accident mitigation. Past experience has indicated that there exists in-plant instrumentation and methodologies available in lieu of a PASS for collecting and assimilating information needed to assess core damage following an accident. Furthermore, the implementation of Severe Accident Management Guidance (SAMG) emphasizes accident management strategies based on in-plant instruments. These strategies provide guidance to the plant staff for mitigation and recovery from a severe accident. Based on current severe accident management strategies and guidelines, it is determined that the PASS provides little benefit to the plant staff in coping with an accident. The regulatory requirements for the PASS can be eliminated without degrading the plant emergency response. The emergency response, in this sense, refers to the methodologies used in ascertaining the condition of the reactor core, mitigating the consequences of an accident, assessing and projecting offsite releases of radioactivity, and establishing protective action recommendations to be communicated to offsite authorities. The elimination of the PASS will not prevent an accident management strategy that meets the initial intent of the post-TMI- 2 accident guidance through the use of the SAMGs, the emergency plan (EP), the emergency operating procedures (EOP), and site survey monitoring that support modification of emergency plan protective action recommendations (PARs).

   Therefore, the proposed change does not involve a significant increase in the probability or consequences of an accident previously evaluated.

2. Does the proposed change create the possibility of a new or different kind of accident from any accident previously evaluated?

   Response: No.

   The elimination of PASS related requirements will not result in any failure mode not previously analyzed. The PASS was intended to allow for verification of the extent of reactor core damage and also to provide an input to offsite dose projection calculations. The PASS is not considered an accident precursor, nor does its existence or elimination have any significant adverse impact on the pre-accident state of the reactor core or post accident confinement of radionuclides within the containment building.

Therefore, the proposed change does not create the possibility of a new or different kind of accident from any previously evaluated.

3. Does the proposed change involve a significant reduction in a margin of safety?

   Response: No.

   The elimination of the PASS, in light of existing plant equipment, instrumentation, procedures, and programs that provide effective mitigation of and recovery from reactor accidents, results in a neutral impact to the margin of safety. Methodologies that are not reliant on PASS are designed to provide rapid assessment of current reactor core conditions and the direction of degradation while effectively responding to the event in order to mitigate the consequences of the accident. The use of a PASS is redundant and does not provide quick recognition of core events or rapid response to events in progress. The intent of the requirements established as a result of the TMI-2 accident can be adequately met without reliance on a PASS.

   Therefore, the proposed change does not involve a significant reduction in a margin of safety.

Based on the above, the TSTF concludes that the proposed change presents no significant hazards consideration under the standards set forth in 10 CFR 50.92(c), and, accordingly, a finding of "no significant hazards consideration" is justified.

5.2 Applicable Regulatory Requirements/Criteria

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. Topical Report BAW-2387 demonstrates that the proposed elimination of PASS is acceptable as the information provided by PASS is either unnecessary or is effectively provided by other indications of process parameters or measurement of radiation levels.

In conclusion, based on the considerations discussed above, (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the approval of the proposed change will not be inimical to the common defense and security or to the health and safety of the public.

6.0 Environmental Considerations

A review has determined that the proposed change would change a requirement with respect to installation or use of a facility component located within the restricted area, as defined in 10 CFR 20, or would change an inspection or surveillance requirement. However, the proposed change does not involve (i) a significant hazards consideration, (ii) a significant change in the types or significant increase in the amounts of any effluent that may be released offsite, or (iii) a significant increase in individual or cumulative occupational radiation exposure. Accordingly, the proposed change meets the eligibility criterion for categorical exclusion set forth in 10 CFR 51.22(c)(9). Therefore, pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the proposed change.

7.0 References

1. TSTF-366, "Elimination of Requirements for a Post Accident Sampling System (PASS)," issued for adoption via the Consolidated Line Item Improvement Program (CLIIP) on 10/31/2000.

2. TSTF-413, "Elimination of Requirements for a Post Accident Sampling System (PASS)," issued for comment in Federal Register Notice dated 12/27/2001.

Revision History

OG Revision 0 **Revision Status: Active** **Next Action: NRC**

Revision Proposed by: BWOG

Revision Description:
Original Issue

Owners Group Review Information

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Owners Group Comments:
(No Comments)

Owners Group Resolution: Approved Date: 30-May-02

TSTF Review Information

TSTF Received Date: 02-Jun-02 Date Distributed for Review: 02-Jun-02

OG Review Completed: ☑ BWOG ☑ WOG ☑ CEOG ☑ BWROG

TSTF Comments:

(No Comments)

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NRC Review Information

NRC Received Date: 03-Jun-02

OG Revision 0 **Revision Status: Active** **Next Action: NRC**

Affected Technical Specifications

5.5.3	Post Accident Sampling

INSERT

---------- Reviewer's Note ----------

This program may be eliminated based on the implementation of BAW-2387, "Justification for the Elimination of the Post Accident Sampling System From the Licensing Bases of Babcock and Wilcox-Designed Plants," and the associated NRC Safety Evaluation.

5.5 Programs and Manuals

5.5.2 Primary Coolant Sources Outside Containment

This program provides controls to minimize leakage from those portions of systems outside containment that could contain highly radioactive fluids during a serious transient or accident to levels as low as practicable. The systems include [Low Pressure Injection, Reactor Building Spray, Makeup and Purification, and Hydrogen Recombiner]. The program shall include the following:

a. Preventive maintenance and periodic visual inspection requirements and

b. Integrated leak test requirements for each system at least once per [18] months.

The provisions of SR 3.0.2 are applicable.

5.5.3 Post Accident Sampling

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This program provides controls that ensure the capability to obtain and analyze reactor coolant, radioactive gases, and particulates in plant gaseous effluents and containment atmosphere samples under accident conditions. The program shall include the following:

a. Training of personnel,

b. Procedures for sampling and analysis, and

c. Provisions for maintenance of sampling and analysis equipment.

5.5.4 Radioactive Effluent Controls Program

This program conforms to 10 CFR 50.36a for the control of radioactive effluents and for maintaining the doses to members of the public from radioactive effluents as low as reasonably achievable. The program shall be contained in the ODCM, shall be implemented by procedures, and shall include remedial actions to be taken whenever the program limits are exceeded. The program shall include the following elements:

a. Limitations on the functional capability of radioactive liquid and gaseous monitoring instrumentation including surveillance tests and setpoint determination in accordance with the methodology in the ODCM,