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**Strategic Teaming and Resource Sharing**

RULES AND DIRECTIVES

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Chief

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**STRATEGIC TEAMING AND RESOURCE SHARING (STARS)**

**COMMENTS ON DRAFT REGULATORY GUIDE DG-1173**

**72FR35521 (June 28, 2007)**

The Strategic Teaming and Resource Sharing (STARS)<sup>1</sup> alliance would like to take advantage of this opportunity to comment on the Draft Regulatory Guide (DG) 1173, Guidance on Monitoring and Responding to Reactor Coolant System Leakage. Comments are provided in the enclosure to this letter.

The STARS alliance appreciates the opportunity to comment on the Draft Regulatory Guide. If there are any questions regarding these comments, please contact me at 573-676-4775, or [tmoser@ameren.com](mailto:tmoser@ameren.com), or Duane Kanitz at 623-393-5427, or [duane.kanitz@aps.com](mailto:duane.kanitz@aps.com).

Sincerely,

T. Moser, Chairman

STARS Integrated Regulatory Affairs Group

<sup>1</sup> STARS is an alliance of six plants (eleven nuclear units) operated by Luminant Power, AmerenUE, Wolf Creek Nuclear Operating Corporation, Pacific Gas and Electric Company, STP Nuclear Operating Company and Arizona Public Service Company.

The STARS Alliance respectfully submits the following comments on Draft Guide 1173 with the reference indicated first followed by the specific comment.

STARS comment number 1

Reference page 3, last paragraph:

"Leakage to the containment atmosphere, which is not collected (such as from valve stem packing glands and other sources), increases the humidity of the containment. The moisture removed from the atmosphere by air coolers, together with any associated liquid leakage to the containment is known as "unidentified leakage," and should be collected in tanks or sumps separate from the identified leakage so that the flow rate and the trend in flow rate of the unidentified leakage can be established, monitored, and analyzed during plant operation."

Comment

Steam leakage to containment atmosphere in pressurized water reactors can be predominately secondary steam leakage. In current designs, leakage collected in the containment sump cannot be directly correlated to primary "unidentified leakage" without sampling.

STARS comment number 2

Reference page 10, regulatory position 6:

"6. Leakage to the primary reactor containment from unidentified sources should be collected so that the total flow rate can be detected, monitored, and quantified for flow rates greater than or equal to 0.05 gpm (0.19 lpm)."

Comment

RCS inventory balance is the current method used to calculate RCS leak rate however, the current equipment installed in some plants may not be sensitive enough to accurately measure an RCS leak rate of 0.05 gpm. While RCS leakage is collected in the containment sumps, the sumps would not be sensitive to an inflow of 0.05 gpm, especially in the early stages of a small RCS leak when most of the hot coolant (steam) would be present in the containment atmosphere.

STARS comment number 3

Reference page 6, paragraph 4:

"Methods that monitor air temperature and pressure may also be used to infer leakage of the coolant to the containment. Containment temperature and pressure fluctuate slightly during plant operation, but a rise above the normally indicated range of values may indicate leakage of the reactor coolant into the containment. The accuracy and relevance of temperature and pressure measurements depend on containment free volume and detector location. Alarm signals from these instruments can be valuable in recognizing rapid and sizable leakage into the containment."

Comment

The first sentence in paragraph 4 on page 6 indicates that containment temperature and pressure indicators can be used to infer leakage of coolant into containment. In current designs, containment temperature and pressure would only indicate very gross leakage. Design air leakage from air-operated valve positioners in containment contribute to containment pressure such that containment pressure raises at least 1 psi per week and must be vented. Containment temperature changes with the daily outside air temperature which also affects the efficiency of the containment cooling. STARS recommends this paragraph be removed, or discussed in the context of indication of large leaks.

STARS comment number 4

Reference page 12, regulatory position 14 and 15:

"14. During maintenance and refueling outages, efforts should be made to identify the source of any unidentified leakage. In addition, corrective action should be taken to eliminate the condition resulting in the leakage."

"15. The technical specifications should include the limiting conditions for identified, unidentified, RCPB, and intersystem leakage, and should address the availability of various types of instruments to ensure adequate coverage during all phases of plant operation."

Comment

The verbiage used in regulatory positions 14 and 15 leads the reader to believe that the NRC expects licensees to monitor RCS leakage during refueling outages. RCS operational leakage requirements in MODE 5 and 6 are currently not required because the reactor coolant pressure is far lower, resulting in lower

stresses and a reduced potential for leakage. Regulatory positions 14 and 15 either need further clarification and justification or they should be deleted. An explanation of acceptable leakage monitoring methods during refueling outages needs to be included if justification can be made for refueling outage monitoring.

STARS comment number 5

Page 14, last paragraph:

“Based on this regulatory analysis, the staff recommends that the NRC should revise Regulatory Guide 1.45. The staff concludes that the proposed action will enhance reactor safety by properly considering the RCS component degradation mechanisms, including corrosion and wastage. It could also lead to cost savings for the industry, especially with regard to applications for standard plant design certifications and combined licenses.”

Comment

In the concluding paragraph the NRC staff recommends revision of Regulatory Guide 1.45. The language implies that current licensees will automatically adopt the latest revision of the regulatory guide. In order to adopt the guide without exception, licensees would need to upgrade their equipment. Therefore, for many licensees adopting the revised regulatory guide would not be practical.