

Synopsis of PORC Review of FW Tracer Test Results

Engineering has completed a detailed review and analysis of the results of the recent Unit 1 and Unit 2 Feedwater flow tracer tests. Recall that the preliminary results of the test revealed that the tracer test nominal flowrates were slightly higher than the flowrates obtained from the installed FW flow venturis. At that time, a preliminary calculation utilizing industry accepted methods, Square Root Sum of the Squares (SRSS), suggested that the difference between the venturi and tracer flowrates for Unit 1 exceeded the allowable tolerance. Therefore, on an interim basis, pending final calculation and analysis, Unit 1 reactor power levels were conservatively restricted to 99.3%.

On 2/26/04, the final analysis was completed, and presented to and accepted by PORC. The analysis uses the same methodology, but incorporates tracer test tolerances and venturi tolerances which are based on a detailed analysis. Utilizing these tolerances, the results indicate that the FW venturi flows are acceptable to use as the appropriate input to determine calorimetric power. Other noteworthy topics discussed at the PORC include:

The analysis results have been independently reviewed and concurred with by Westinghouse (AMAG vendor), ABB (tracer test vendor), Cantera engineering, and Mid Atlantic engineering staff.

Secondary plant parameters, RCS Delta T values, and Generator output when compared between Byron 1 and Braidwood 1 and Byron 2 and Braidwood 2, are very closely aligned when Feedwater venturi flow is used as input to calorimetric power. Discrepancies between the sister units at the two sites noted when AMAG was used in the past are not evident.

Unusual bias of secondary plant parameter tolerances in the positive direction seen when AMAG was utilized are also not evident (i.e. while all parameters are within tolerance, there is a balance between those that are above the expected value and those that are below the expected value).

SRSS methodology is widely used for statistical analysis in the industry. When two independent measurements are found within the calculated SRSS tolerance, those results are considered statistically equivalent with a 95% confidence level that both results are accurate (i.e. if the test were performed 100 times, we would expect the results to match within the tolerance 95 out of the 100 times).

In summary, FW tracer test analysis results have been reviewed and approved by PORC. The Plant Manager has accepted the recommendation of the PORC and, in turn, recommended to the SOS as the Senior License Holder that the conservative limit of 99.3% reactor power for Unit 1 be lifted.

 2-26-04
PORC CHAIRMAN

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