

# NORTHEAST UTILITIES



THE CONNECTICUT LIGHT AND POWER COMPANY  
THE HARTFORD ELECTRIC LIGHT COMPANY  
WESTERN MASSACHUSETTS ELECTRIC COMPANY  
MASSACHUSETTS WATER POWER COMPANY  
NORTHEAST UTILITIES SERVICE COMPANY  
NORTHEAST UTILITIES NETWORK COMPANY

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August 29, 1979

Docket No. 50-536

Director of Nuclear Reactor Regulation  
Attn: Mr. R. Reid, Chief  
Operating Reactors Branch #4  
U. S. Nuclear Regulatory Commission  
Washington, D. C. 20555

References: (1) R. Reid letter to W. G. Council dated December 28, 1978.  
(2) W. G. Council letter to R. Reid dated March 28, 1979.

Gentlemen:

Millstone Nuclear Power Station, Unit No. 2  
Resistance Temperature Detector Response Times Measurements

Pursuant to Technical Specification Section 4.3.1.1.3, Northeast Nuclear Energy Company (NNECO) is required to perform Surveillance Tests on the Reactor Protective Instrumentation once per 18 months. The Surveillance Requirement includes a determination of sensor response time. Current techniques for performing this measurement on the Resistance Temperature Detectors (RTD's) involve removing these sensors from their thermowells in the primary system piping. The RTD's are then subjected to Plunge tests in an environment distinct from that in which they operate.

The Loop Current Step Response (LCSR) method of in-situ surveillance of RTD response time has been developed. The NRC Staff, in Reference (1), requested information on the program including the test method, the specific results, and an analysis of the Millstone Unit No. 2 data in comparison with previous RTD response time data. NNECO responded to this request in Reference (2) providing the Staff with an engineering evaluation of the LCSR method.

It is NNECO's intention to utilize the LCSR method to satisfy the applicable Surveillance Requirements of the Technical Specifications. NNECO's review has determined that this method is superior to the alternatives based on the following:

- (1) Extensive theoretical analysis has been performed in developing the LCSR method.
- (2) Extensive laboratory testing comparing the LCSR test results to the Plunge test results have been performed.
- (3) Results of in-plant testing accomplished to date.

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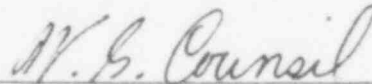
In addition, the LCSR method tests the RTD in its normal operating environment and configuration, including the thermowell and RTD/well interface. Laboratory evidence has indicated that this interface plays a critical role in establishing the RTD time constant. The LCSR method is judged to be safer and easier to perform. The results also tend to be most conservative when compared to Plunge test results providing a greater assurance of appropriate RTD function.

In fulfillment of a verbal NRC Staff request, NNECO hereby provides the Topical Report entitled, "Response Time Qualification of Resistance Thermometers in Nuclear Power Plant Safety Systems", for your information.

NNECO has reviewed this submittal pursuant to the requirements of 10CFR Part 170, and has determined that no fee is applicable in this instance. The basis for this determination is that the attached document is provided for NRC Staff information, at their request. NNECO is not formally requesting Staff review by forwarding the attached document.

Very truly yours,

NORTHEAST NUCLEAR ENERGY COMPANY



W. G. Council  
Vice President

Attachment

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