NORTHEAST UTILITIES
THE CONNECTICUT LIGHT AND POWER COMPANY
THE HARTFORD ELECTRIC LIGHT COMPANY
WESTERN MASSACHUSETTS ELECTRIC COMPANY
HOLYOKE WATER POWER COMPANY
NORTHEAST UTILITIES SERVICE COMPANY
NORTHEAST NUCLEAR ENERGY COMPANY

P.O. BOX 270
HARTFORD, CONNECTICUT 06101
(203) 666-6911

August 6, 1981

Docket No. 50-245
A01768

Director of Nuclear Reactor Regulation
Attn: Mr. Dennis M. Crutchfield, Chief
Operating Reactors Branch #5
U. S. Nuclear Regulatory Commission
Washington, D.C. 20555

Reference: (1) D. M. Crutchfield letter to W. G. Counsil, dated June 3, 1981.

(2) Standard for Light Water Power Reactor Coolant Pressure Boundary Leak Detection, Instrument Society of America, ISA-ds67.03, 1980.

Gentlemen:

Millstone Nuclear Power Station, Unit No. 1
SEP Topic V-5; Reator Coolant Pressure Boundary Leakage Detection

Reference (1) forwarded the Staff's evaluation of SEP Topic V-5, Reactor Coolant Pressure Boundary Leakage Detection, for Millstone Unit No. 1. Northeast Nuclear Energy Company (NNECO) has reviewed Reference (1) and determined that it is factually correct with the addition of the following comments.

The sump level monitoring (inventory), sump pump actuations monitoring (time meters), airborne particulate radioactivity, airborne gaseous radioactivity, and containment atmosphere pressure, humidity, and temperature monitoring systems all have control room indications and alarms.

Regulatory Guide 1.45 states that the leakage detection system employed should be adequate to detect a leakage rate, or its equivalent, of 1 gpm in less than 1 hour. Although all the systems employed for leakage detection may not have this sensitivity in all cases, plant experience has shown these systems to be adequate in that leaks of less than 1 gpm have been detected in less than 1 hour. The assignment of a leak detection sensitivity of 1 gpm within 1 hour is impratical in all cases due to the variables associated with leak detection such as power level, reactor coolant activity, location of the leak, location of heat sinks, non-uniformities in the containment atmosphere, isotopic mixture, plate-out factors, and other plant and operational variables, as per Reference (2). For example, coolant concentrations will vary by orders of magnitude within short time periods due to changes in operating conditions. It should also be realized that increases in containment activity may be due to temporary spiking increases in the coolant concentrations following startups and power transients rather than due to increases in leakage.

A035
S.1/0

The design sensitivity of the containment atmosphere humidity monitor, for example, is such that a leak of 1 gpm would be detected within 1 hour even if 98% of the vapor were condensed out. However, this assumes absolute atmospheric uniformity throughout the drywell and does not allow for local wet/dry or hot/cold spots.

NNECO has concluded that the assignment of an individual sensitivity criterion to devices such as temperature detectors, humidity monitors and radiation monitors is impractical and can not be quantified. The overall system, with associated diversity and redundancy, however does have the capability to detect a change in primary leak rate of 1 gpm within a 1 hour period. We trust these comments will be appropriately incorporated into the Staff's evaluation for this SEP topic.

Very truly yours,

NORTHEAST NUCLEAR ENERGY COMPANY

W. G. Counsil

W. G. Counsil
Senior Vice President