CONNECTICUT YANKEE ATOMIC POWER COMPANY

BERLIN, CONNECTICUT
P. O. BOX 270 HARTFORD, CONNECTICUT 06101

TELEPHONE
203-666-6911

August 8, 1980

Docket No. 50-213
A00898

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

References: (1) D. L. Ziemann letter to W. G. Counsil dated February 15, 1980.
(2) D. L. Ziemann letter to W. G. Counsil dated March 6, 1980.
(3) W. G. Counsil letter to D. L. Ziemann dated March 11, 1980.
(4) W. G. Counsil letter to D. L. Ziemann dated March 12, 1980.
(5) W. G. Counsil letter to D. L. Ziemann dated April 29, 1980.
(6) D. L. Ziemann letter to W. G. Counsil dated March 28, 1980.
(7) W. G. Counsil letter to D. M. Crutchfield dated May 1, 1980.
(8) W. G. Counsil letter to D. M. Crutchfield dated June 2, 1980.

Gentlemen:

Haddam Neck Plant
Environmental Qualification of Electrical Equipment

In References (1) and (2), the Staff identified a need for certain information relevant to evaluating the environmental qualification of Class 1E electrical equipment at the Haddam Neck Plant. Connecticut Yankee Atomic Power Company (CYAPCO) provided this information in References (3), (4), and (5). In Reference (6), the Staff supplemented its information requests by forwarding Enclosures 2 and 3 regarding plant-specific calculations for service condition profiles. References (7) and (8) provided this additional information.

Constraints on available manpower and time resulted in Reference (8) information being submitted to the Staff on a non-QA basis. Completion of CYAPCO's QA review of the Reference (8) information has resulted in the identification of 12 incorrect responses. The attached pages identify these responses, together with the correct results. In 11 of these 12 cases, the incorrect value was conservative or the magnitude of the error was insignificant. The one exception is the response to Item 14b, regarding the mass and temperature of feedwater. In this instance, a significant length of piping was inadvertently omitted from the original calculations.

CYAPCO trusts these errors have not resulted in any inconvenience to the Staff.

Very truly yours,

CONNECTICUT YANKEE ATOMIC POWER COMPANY

W. G. Counsil
Senior Vice President

Attachment

DOCKET NO. 50-213

ATTACHMENT

HADDAM NECK PLANT

ENVIRONMENTAL QUALIFICATION OF ELECTRICAL EQUIPMENT

AUGUST, 1980

Question (1)

Reactor rated power.

Response

1825 MWT

Question (2)

Steam flow rate per steam generator at full speed.

Response

1.9175×10^6 lb/hr.

Question (3)

Fluid mass in each steam generator at full power and hot shutdown.

Response	Revised
36058 lB at full power (total)	36014 13 at full power (total)
33117 lB at full power (liquid)	
2941 lB at full power (steam)	2897 lB at full power (steam)
70760 lB at hot shutdown (total)	
68488 lB at hot shutdown (liquid)	
2272 lB at hot shutdown (steam)	

Question (4)

Fluid energy in each steam generator at full power and hot shutdown.

Response	Revised
1.903×10^7 BTU at full power	1.898×10^7 LTU at full power
3.879×10^7 BTU at hot shutdown	

Question (5)

Steam line flow area.

Response

2.655 ft^2

Question (6)

Time when steam isolation valves will close following a main steam line break.

Response

Ten (10) seconds -- Note: Non-return valves prevent backflow into the containment.

Question (7)

Mass of unisolated steam between a steam generator and the isolation valve following closure of main steam isolation valves.

Response	Revised
312 lB at full power	308 lB at full power
409 lB at hot shutdown	

Question (8)

Additional mass of unisolated steam if the main steam isolation valve nearest the break fails to close.

Response

Not applicable to CY. Non-return check valves will prevent additional backflow. Non-return valves are upstream of MSIV's.

Mass of steam between MSIV and non-return valves are as follows:

	Revised
15 lB at full power	39.6 lB at full power
20 lB at hot shutdown	52.6 lB at hot shutdown

Question (9)

Main feedwater line flow area.

Response

0.706 ft^2

Question (10)

Main feedwater enthalpy.

Response

410.4 BTU/lb

Question (11)

Time when main feedwater isolation valves will close following a main steam line break.

Response

Feedwater isolation manual at CV. Feedwater reg. valves fully closed at 31 seconds following MSLR.

Question (12)

Mass and temperature of feedwater between a steam generator and the feedwater isolation valve.

Response

16203 lb
432°F

Question (13)

Mass and temperature of feedwater above 240°F between a steam generator and any redundant feedwater isolation valve.

Response

17434 lb
432°F

Question (14)

Mass and temperature of all feedwater above 240°F.

Response

	Revised
2.336×10^4 LBM @ 242°F	2.302×10^4 LBM @ 242^0F
3.337×10^4 LBM @ 289°F	4.496×10^4 LBM @ 289^0F
5.273×10^4 LBM @ 366°F	4.806×10^4 LBM @ 366^0F
5.467×10^4 LBM @ 432°F	
2.889×10^4 LBM @ 436°F	

Question (15)

Time when auxiliary feedwater injection will begin following a main steam line break.

Response

Six (6) seconds.

Question (16)

Auxiliary feedwater flow rate and enthalpy.

Response

666 gpm
88.0 BTU/lB

Question (17)

Time when core flooding system will begin injection following a LOCA.

Response

22.2 seconds.

Question (18)

Fluid mass in the reactor system at full power and hot shutdown.

Response

Full power - 366171 lB
Hot Shutdown - 361773 lB

Question (19)

Fluid energy in the reactor system at full power and hot shutdown.

Response

Hot full power = 1.9665×10^8 BTU
Hot zero power = 1.9468×10^8 BTU

Revised

Hot full power = 2.0510×10^8 BTU
Hot zero power = 1.9659×10^8 BTU

Question (20)

Hot and cold leg line flow areas.

Response

Hot leg = 4.125 ft^2
Cold leg = 4.125 ft^2
Cold leg PS = 4.587 ft^2

Question (21)

Core flooding system flow rate and temperature.

Response

Flow rates - Figures 1 and 2
Temperature = 100°F

Question (22)

Sensible heat in the core and reactor system metal that is above 240°F at full power operation.

Response	Revised
1.002×10^8 BTU	9.916×10^7 BTU

Question (23)

Initial hot and cold leg temperatures.

Response

T_{hot} = 579°F
T_{cold} = 529°F