



CONNECTICUT YANKEE ATOMIC POWER COMPANY

BERLIN, CONNECTICUT

P. O. BOX 270 HARTFORD, CONNECTICUT 06101

December 14, 1982

Docket No. 50-213
B10633

TELEPHONE
203-666-6911

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

- References: (1) EPRI NP-2119, "Investigation of SS Clad Fuel Rod Failures and Fuel Performance in the Connecticut Yankee Reactor", Final Report November, 1981.
- (2) W. G. Council letter to D. M. Crutchfield, dated December 11, 1981.

Gentlemen:

Haddam Neck Plant
Peak Linear Heat Generation Rate
Proposed Revisions to Technical Specifications

Pursuant to 10 CFR 50.90, Connecticut Yankee Atomic Power Company (CYAPCO) on behalf of the Haddam Neck Plant hereby proposes to amend its operating license, DPR-61, by incorporating the changes as described herein into the Haddam Neck Plant Technical Specifications. These changes are necessary to support startup following the next refueling outage, currently scheduled to commence in January of 1983. The new reload fuel consists of 52 stainless steel clad 15 x 15 fuel assemblies manufactured by Babcock and Wilcox. The remainder of the fuel for the next cycle will consist of 105 once and twice burned fuel assemblies, all of similar design.

During Cycle IX operations, the Haddam Neck Plant experienced fuel failures in several fuel assemblies. To avoid future failures of this type, CYAPCO has instituted several changes in fuel rod loading and fuel pellet fabrication method. The Batch 14, Cycle XII reload will incorporate a fuel rod design change which will increase the fuel pellet/clad gap and reduce the stresses on the cladding caused by fuel pellet expansion. A study conducted subsequent to the fuel failures (Reference 1) indicates that such a change is a positive means to avoid the Cycle IX failure mechanism. For LOCA consideration, the fuel rods will be pre-pressurized with Helium at 45 psig (nominal) to compensate for decreased heat transfer caused by the larger gap. Those specific design changes which have an effect on the calculated results of an accident are as follows:

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w/check
\$ 4000.00

	<u>Current Cycle XI</u>	<u>Cycle XII and Future</u>
Pellet/clad gap (BOL, cold)	5.5 mil	6.5 mil
Pre-pressurization (min.)	0 psig, 85% He	40 psig, 95% He

CYAPCO has evaluated the design basis accidents with respect to this fuel design change. The pellet gap increase and compensating pre-pressurization have been shown by analyses conforming to the Interim Acceptance Criteria ECCS model, for the HNP to have a minor effect on plant LOCA response. To retain the same extensive conservatism as with the previous design, a reduction in the BOL Maximum Allowable Linear Heat Generation Rate (LHGR) of 0.15 kw/ft is necessary. An evaluation of non-LOCA Accident Analyses has shown no increases in the probability of occurrences or accident consequences as a result of these changes to the fuel design.

In Reference 2, CYAPCO reported a non-conservative assumption in the core inlet temperature with respect to the actual full power inlet temperature. At that time CYAPCO determined that the penalty caused by the non conservative core inlet temperature assumption was more than offset by conservatism in the accident analysis for which no credit was assumed. These recently performed analyses have confirmed that the 0.8 kw/ft LHGR reduction we had calculated for the T inlet anomaly found in 1981 and reported in Reference 2 was conservatively determined.

In order to maintain a high degree of calculational conservatism CYAPCO proposes to lower the allowable LHGR by 0.8 kw/ft as a result of the change in the core inlet temperature assumption. This results in a net Maximum Allowable LHGR reduction of 0.95 kw/ft at beginning of cycle.

While CYAPCO is confident that conservatisms exist and that additional evaluation could justify continued use of the present 14.8 kw/ft LHGR limit of Technical Specification 3.17, CYAPCO intends to retain the extensive conservatism in the ECCS calculations by reducing the Technical Specification LHGR limit to 13.85 kw/ft. A corresponding change to the Power vs. Offset envelopes is also required to reflect the lowered LHGR.

Attached for your review and approval are the proposed changes to Technical Specifications 3.17 and Power vs. Offset envelopes (Technical Specification 3.18).

Please note that the attached Power vs. Offset envelopes are marked "Preliminary". CYAPCO expects that the final envelopes will be nearly identical to those attached. The envelopes are being confirmed by calculations and will be docketed for review and approval by January 4, 1983.

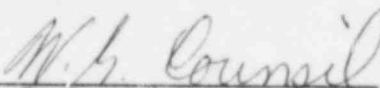
Issuance of the attached revisions to Technical Specifications 3.17 and 3.18 is requested prior to start-up of the Haddam Neck Plant scheduled in March, 1983. We will be communicating periodically with the NRC Project Manager regarding a more specific startup date as the outage progresses.

A technical review and safety evaluation have been performed on the proposed changes. This change has also been reviewed by the onsite Plant Operations Review Committee and the off-site Nuclear Review Board. Based on the above reviews CYAPCO has determined that this change or the reload does not constitute an unreviewed safety question pursuant to 10 CFR 50.59. This determination is based on the results of the LOCA and non-LOCA analyses completed, and the Technical Specification change identified herein.

CYAPCO has reviewed the proposed Technical Specification change pursuant to the requirements of 10CFR170 and has determined that the change constitutes a single Class III Amendment in that it involves a single safety issue which does not involve a significant hazard consideration. Accordingly enclosed herewith is payment in the amount of \$4,000 (four thousand dollars).

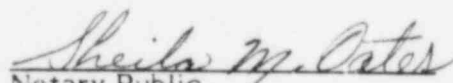
Very truly yours,

CONNECTICUT YANKEE ATOMIC POWER COMPANY


W. G. Council
Senior Vice President

STATE OF CONNECTICUT)
COUNTY OF HARTFORD)

Then personally appeared before me W. G. Council, who being duly sworn, did state that he is Senior Vice President of Connecticut Yankee Atomic Power Company, that he is authorized to execute and file the foregoing information in the name and on behalf of the Licensees herein and that the statement contained in said information are true and correct to the best of his knowledge and belief.


Notary Public

My Commission Expires March 31, 1986