February 15, 1991

Docket No. 50-213

LICENSEE: Connecticut Yankee Atomic Power Company

FACILITY: Haddam Neck Plant

SUBJECT: SUMMARY OF JANUARY 17, 1991 MEETING REGARDING THE PLANNED CONVERSION TO ZIRCALOY FUEL

On January 17, 1991, the staff met with Connecticut Yankee Atomic Power Company (CYAPCO) to discuss the status of their zircaloy clad conversion. CYAPCO has submitted the following in support of the zircaloy conversion: 1) small break LOCA analysis, 2) large break LOCA analysis, 3) Appendix K Exemption Request, and 4) fuel mechanical design report. The Technical Report Supporting Cycle Operation (TRSCO) with the updated non-LOCA transient analysis will be submitted in June 1991. CYAPCO has requested the NRC to complete these reviews by December 1991 to support the Cycle 17 Startup. The NRC staff stated that the schedule is reasonable and the staff will be able to support the proposed schedule. CYAPCO stated that in addition to the above the plant will not be analyzed for 3-loop operation during Cycle 17 and possible Cycle 18. The NRC inquired whether CYAPCO will inspect all of the fuel assemblies in the last third of the core associated with the thermal shield removal damage. CYAPCO stated that the decision had not been made. Based on the analysis reviewed so far the staff believes there is sufficient margin to support the zircaloy conversion.

Enclosed are CYAPCO's handouts for the meeting and the attendance list.

/s/

Alan Wang, Project Manager
Project Directorate I-4
Division of Reactor Projects - I/II

Enclosures:
As stated

cc w/enclosures:
See next page

OFC	:PDI-4-LA	:PDI-4:PM	:PDI-4:D	:	:
NAME	:SNorris	:AWang/BAW	:JStolz	:	:
DATE	:2/14/91	:2/15/91	:2/15/91	:	:

OFFICIAL RECORD COPY
Document Name: SUMMARY OF MEETING

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DISTRIBUTION DATED: February 13, 1991

Docket File
NRC & Local PDRs
PDI-4 Memo
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Meeting With The NRC

On

Haddam Neck Plant

Zircaloy Cladding Conversion

Northeast Utilities Service Company
Connecticut Yankee Atomic Power Company
Westinghouse Electric Corporation

Agenda

Introduction	E. L. Annino
Purpose of Meeting	E. L. Annino
Background	W. M. Herwig
WCOBRA/TRAC Analysis Results	L. E. Hochreiter, R. M. Kemper
Zircaloy Conversion Program Overview	W. M. Herwig
Summary / Conclusions	W. M. Herwig
Discussion	All

Participants

NUSCO Participants

E. L. Annino (Ed)	Analyst, Licensing
W. M. Herwig (Bill)	Senior Engineer, Reactor Engineering
M. S. Kai (Mike)	Supervisor, Reactor Engineering

Westinghouse Participants

L. E. Hochreiter (Larry)	Consulting Engineer
W. D. Tauche (Walt)	Manager, Safeguards Analysis
R. M. Kemper (Bob)	Principle Engineer
U. L. Brown (Lamar)	Senior Engineer

Purpose of Meeting

- Present Large Break LOCA Analysis Results
- Present Zircaloy Conversion Program Overview
- Reaffirm NRC Review Commitments

Background

- Early 1988 - Began Zircaloy Conversion Discussions With NRC
- December 1988 - Submitted Small Break Analysis
- January 1989 - Submitted Large Break System Evaluation Model
- February 1989 - Submitted Large Break Fuel Rod And Core Oxidation Evaluation Models
- August 1989 - Revised Large Break LOCA Approach
- December 1989 - Submitted Fuel Mechanical Design Report
- September 1990 - Submitted Appendix K Exemption Request
- November 1990 - Submitted WCOBRA/TRAC Large Break Analysis Results
- December 1991 - Expected Cycle 17 Startup

WCOBRA / TRAC Analysis Results

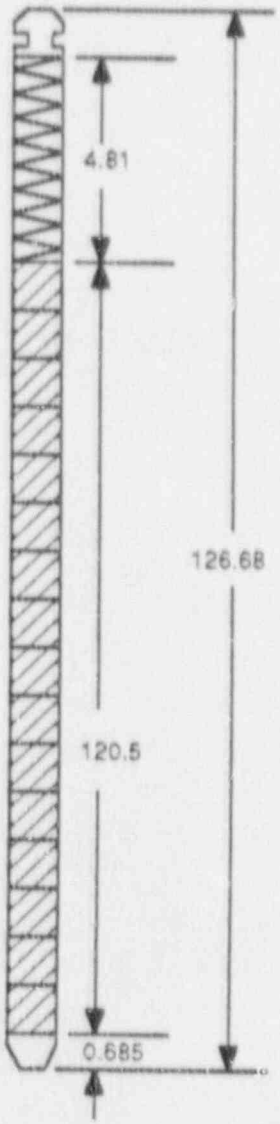
Zircaloy Conversion Program Overview

- Fuel Mechanical Design Changes
- Cycle 17 Reload
- Remaining Activities

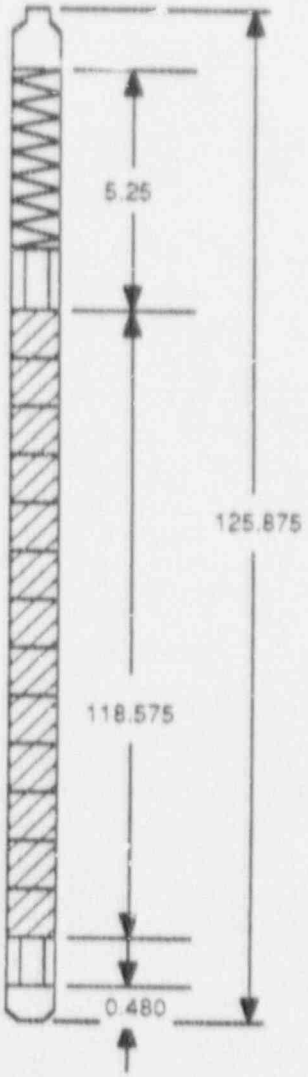
Fuel Mechanical Design Changes

- Debris Resistant Design Features Added As A Result Of Cycle 15 Fuel Failures
  - Solid Bottom Endcap
  - Realign Bottom Spacer Grid
  - Reduced Rod Prepressure
  - Eliminated Fuel Rod Tubular Spacers
  - Revised Plenum Spring
- Design Changes Included In Large Break LOCA Analysis
- Conclusions From Fuel Mechanical Design Report (NUSCO-166) Remain Valid

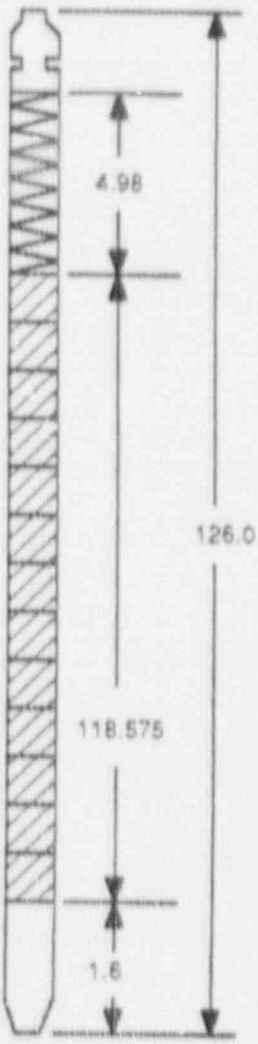
Fuel Rod Design Comparison



Stainless Steel

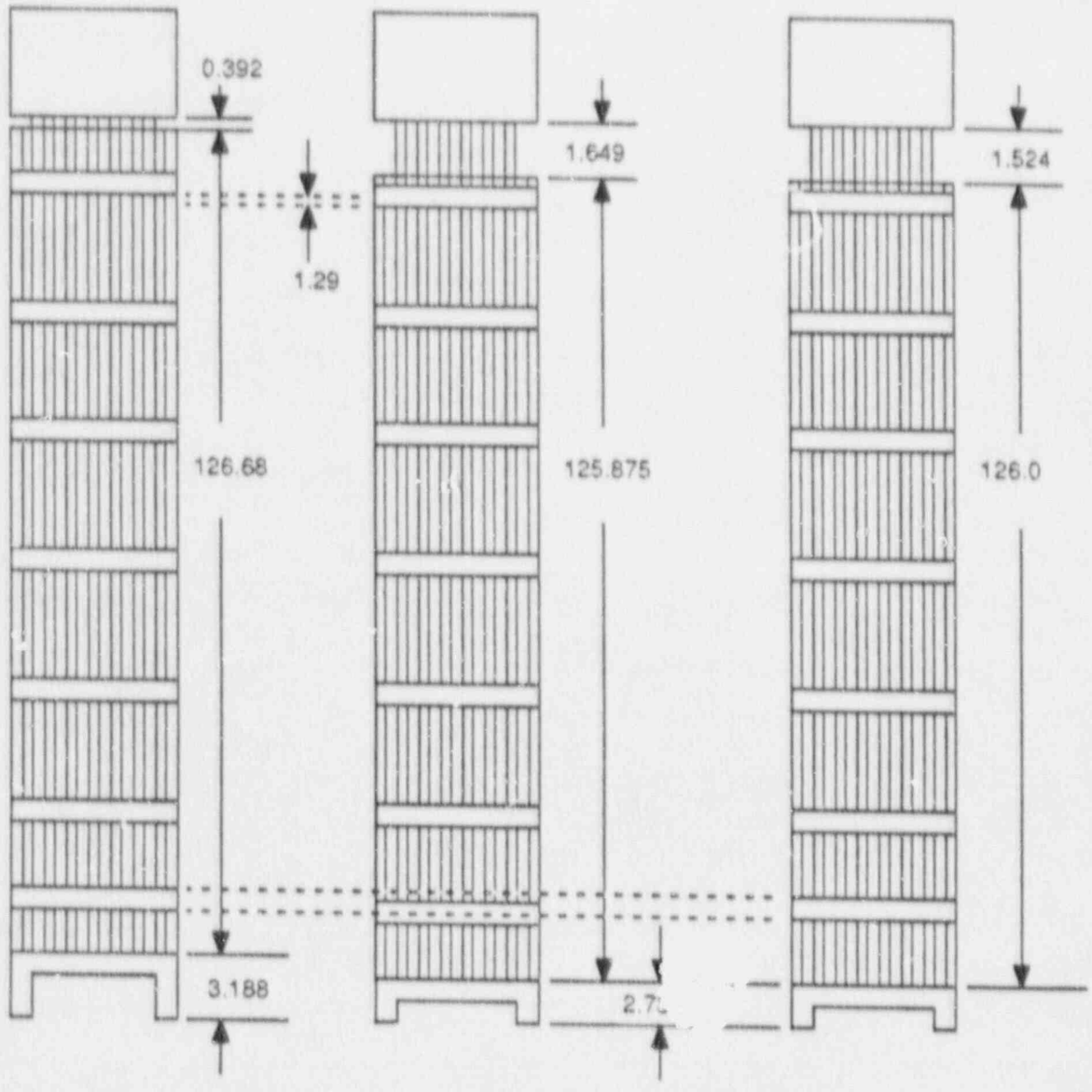


Zircaloy



Zircaloy - Debris Resistant

Fuel Assembly Design Comparison



Cycle 17 Reload

- o Fuel Cycle Design In Progress
  - 48 Zircaloy Clad Fuel Assembly Fresh Feed
  - 410 Effective Full Power Day Cycle Length
- o Non-LOCA Transients Require Re-evaluation For Zircaloy Clad Fuel Rod
- o Large And Small Break LOCA Analyses Have Been Submitted
- o Retain Current IAC Large Break LOCA Design Basis Until All Stainless Steel Clad Fuel Is Discharged
- o No Anticipated Changes in Design Or Operating Limits Driven By Fuel Design Change
- o No Plant Hardware Changes Required By Fuel Design Change
- o No Three Loop Operation

Remaining Activities

- Ongoing - Support NRC Review Of Submitted Documents
  - Fuel Mechanical Design Report
  - Small Break LOCA Analysis
  - Appendix K Exemption Request
  - Large Break LOCA Analysis
- March 1991 - Submit Section 5 Design Features Tech Spec Change To Justify Storage Of Zircaloy Fuel In New And Spent Fuel Racks
- June 1991 - Submit Technical Report Supporting Cycle 17 Operation (Including Cycle Specific Core Operating Limits) And Reload Related Tech Spec Changes
- October 1991 - Cycle 16 Shutdown
- December 1991 - Cycle 17 Startup

Summary And Conclusions

- The Large Break LOCA Analysis For Zircaloy Clad Fuel Demonstrates Acceptable ECCS Performance With Substantial Margin

- The Following Information Has Been Submitted To Support The Cycle 17 Conversion To Zircaloy Clad Fuel

  - Small Break LOCA Analysis
  - Large Break LOCA Analysis
  - Appendix K Exemption Request
  - Fuel Mechanical Design Report

- Normal Reload Analyses Will Be Submitted In June 1991

- Respectfully Request NRC To Perform Necessary Reviews To Support Cycle 17 Startup In December 1991

Discussion