UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555

January 23, 1992

Docket No. 50-338

LICENSEE: Virginia Electric and Power Company (VEPCO)

FACILITY: North Anna Power Station, Unit No. 1 (NA-1)

SUBJECT: MEETING SUMMARY OF DECEMBER 2, 1991
(TAC NO. M80702)

On December 2, 1991, representatives of the NRC, VEPCO, and Westinghouse met to discuss the need for a mid-cycle NA-1 steam generator (SG) inspection. Major portions of the meeting were of a proprietary nature and, therefore, are not discussed in this meeting summary. A list of attendees is provided as Enclosure 1. Enclosure 2 is a copy of the handout at the meeting.

VEPCO provided justification for continued operation of NA-1 without a mid-cycle SG inspection (see Enclosure 2). The mid-cycle SG inspection was specified in NRC letter dated March 7, 1991. VEPCO indicated that there would be no increased risk or safety issues with operation for an additional 3 months, i.e., from January 7, 1992 (required time for commencing mid-cycle SG inspection) to April 1992. Extensive tubing inspections more conservative than the NA-1 Technical Specifications (TS) have been performed since 1985. The extensive inspections have used conservative plugging criteria in the 1991 SG inspection outage. The 1991 SG inspection specified 100% full length (hot and cold leg) bobbin coil probes in each SG. Also, 100% of tubes in each SG through the 4th tube support plate (hot leg) were inspected with 8 x 1 probes. Finally, rotating pancake coil (RPC) probes were conducted on 100% of the WEXTEX expansion zone and Row 2 U-bends and analysis of all bobbin and 8 x 1 probable indications (PIs) was conducted. VEPCO also indicated that very restrictive operating limits on allowable primary-to-secondary leakage are in place, and operators are well trained in leakage detection.

Westinghouse discussed in great detail priority issues identified in the NRC letter dated November 7, 1991, "Request For Additional Information, Steam Generators (SGs), North Anna Power Station, Unit No. 1 (NA-1) (TAC NO. M80702)." Items discussed were: (1) leak-before-break analysis and ligaments in cracks, (2) confidence in crack growth rates, and (3) confidence in eddy current test (ECT) detection.

In summary, VEPCO stated that operation of NA-1 until April 1992 without a mid-cycle SG inspection was safe and does not pose an unreviewed safety question. Conservative operating limits for primary-to-secondary leakage and state-of-the-art leakage detection systems are in place. Also, real

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primary-to-secondary leakage for past and current operating cycles has been very low. Finally, VEPCO requested operation of NA-1 for an additional 3 months (April 1992) before the next NA-1 SG inspection.

/s/
Leon B. Engle, Project Manager
Project Directorate II-2
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Enclosures:
1. Attendance List
2. Meeting Handout

cc w/enclosures:
See next page

DISTRIBUTION:
See next page

OF	:LA:PDII-2	:PM:PDII-2	:D:PDII-2	:	:	:
NAME	:DJohnson	:LEngle	:H. Berkow	:	:	:
DATE	:1/17/92	:1/21/92	:1/23/92	:	:	:

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Mr. W. L. Stewart
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ENCLOSURE 1

ATTENDANCE LIST

MEETING: DECEMBER 2, 1991

NA-1 SG MID-CYCLE INSPECTION

NRC

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G. Holahan
G. Johnson
K. Karwoski
G. Lainas
B. Liaw
E. Murphy
J. Partlow
J. Richardson
S. Varga

SOUTHERN TECHNICAL SERVICES

L. Connor

VEPCO

M. Bowling
J. Eastwood
E. Grecheck
J. Lee
E. Throckmorton
J. Stall
W. Stewart
L. Hartz

WESTINGHOUSE

V. Esposito
J. Houtman
D. Malinowski
T. Pitterle
G. Whiteman
R. Easterling

VIRGINIA POWER

North Anna Unit 1
Steam Generator Operating Cycle Meeting

December 2, 1991

ENCLOSURE 2

North Anna Unit 1
Steam Generator Operating Cycle Meeting
December 2, 1991

Agenda

I. Introduction & Overview	W. L. Stewart
II. Operating Perspective	J. A. Stall
III. Priority Issues Discussion A. Leak-Before-Break Analysis & Ligaments in Cracks B. Confidence in Crack Growth Rates C. Confidence in ECT Detection	Westinghouse
IV. Conclusions	M. L. Bowling
(Break for lunch)	
V. Response to Remaining 23 Questions identified by NRC as Most Important	Westinghouse

VIRGINIA POWER

Introduction

W. L. Stewart
Senior Vice President - Nuclear

Introduction

Meeting Objectives

- Provide necessary information to justify continued operation through April 1992

- Provide responses to the priority NRC questions

Overview

No increased risk or safety issues with operation for an additional 3 months:

- Extensive tubing inspections, well beyond the Tech. Spec. requirements, have been performed since 1985.

- Extensive inspections performed and conservative plugging criteria consistently used in 1991 outage.

- Very restrictive operating limits on allowable primary-to-secondary leakage have been put in place.

- Operators are well trained in leakage detection and actions to be taken.

Overview

- Conservative analysis provided which supports a full 18-month cycle of operation.

- Current cycle has been shortened from 18 to 13 months.

- The next cycle will only be approximately 10 months until the steam generators are replaced in Spring 1993.

VIRGINIA POWER

Operating Perspective

J. A. Stall
Assist. Station Manager - Nuclear Safety & Licensing

Operating Perspective

Extensive inspection during 1991 refueling outage:

- Bobbin Coil Probe - 100% full length (hot and cold leg) in each steam generator

- 8 x 1 Probe - 100% of tubes in each steam generator through at least the 4th tube support plate (hot leg)

- RPC Probe - 100% WEXTEX expansion zone
  - 100% Row 2 U-bends
  - Verification of all Bobbin and 8 x 1 indications

Operating Perspective

"State of the art" primary-to-secondary leakage monitoring capability

- Individual steam generator N-16 monitor indication (Continuous)
- Main steam header N-16 monitor indication (Continuous)
- Main steamline (NRC) radiation monitors on each steamline (Continuous, record data every 4 hours)
- Condenser air ejector radiation monitor indication (Continuous, record data every 4 hours)
- Blowdown radiation monitor indication on each S/G blowdown line (Continuous during blowdown)
- Grab samples taken on condenser air ejector (Daily)
- Steam generator blowdown samples taken (Every 72 hours)

Operating Perspective

Current Administrative Operational Restrictions

- If a rapid increase in primary-to-secondary leakage of greater than 100 GPD in an individual steam generator occurs within a 30 minute period, then trip the reactor.

- If the primary-to-secondary leakage exceeds or will apparently exceed either:

  (1) 150 GPD total leakage from all steam generators, or

  (2) 50 GPD leakage from an individual steam generator,

  then reduce power to less than 50% RATED THERMAL POWER within 90 minutes AND below MODE 1 within two hours from detection.

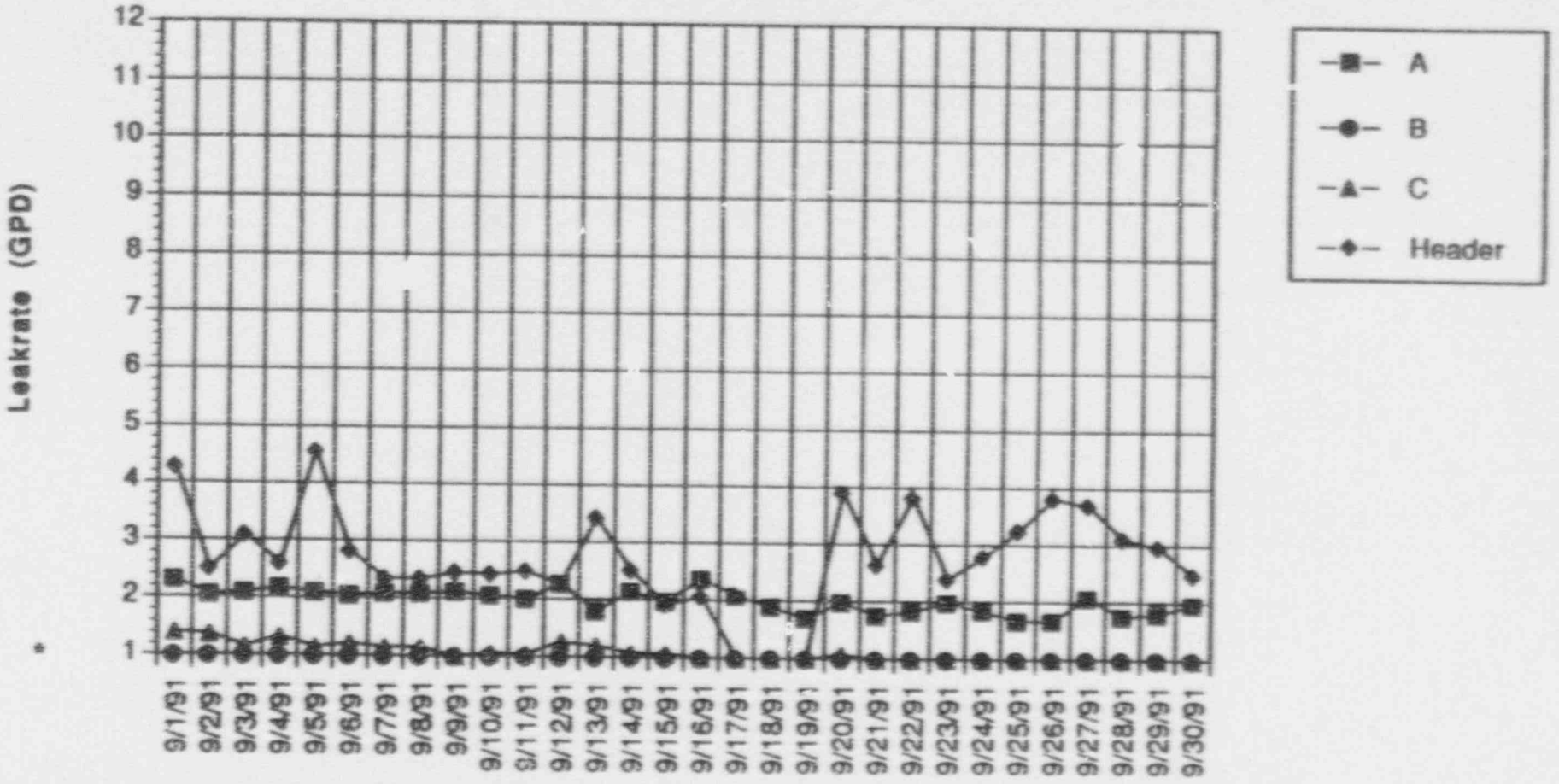
- If none of the primary-to-secondary leakage detection systems (as required by Tech. Specs.) are available, then reduce power to less than 50% RATED THERMAL POWER within 90 minutes AND below MODE 1 within two hours of determining no available leakage detection systems.

Operating Perspective

Leakage Experience

- Low primary-to-secondary leakage for last 3 cycles
  - Previous operating history supports current operation. Since November 1985 refueling outage, there have been no forced outages for the major active degradation mechanisms, even with leakage limits lowered by a factor of 10.
  - Maximum leakage experienced was ~15 GPD over the last cycle.
- Current primary-to-secondary leakage is low (< 7 GPD total, ~ 2 GPD per S/G).

North Anna Unit 1 Primary-to-Secondary Leakrate
N-16 Radiation Monitors
September 1991



* Leakrates less than 1 GPD cannot be monitored. Plotted as 1 GPD.

Westinghouse

North Anna Unit 1

Priority Issues Discussion

T. A. Pitterle

Priority Issues Discussion

A. Leak-Before-Break Analysis & Ligaments in Cracks

B. Confidence in Crack Growth Rates

C. Confidence in ECT Detection

VIRGINIA POWER

Conclusions

M. L. Bowling
Manager - Nuclear Licensing & Programs

Conclusions

- Operation until April 1992 without a mid-cycle shutdown is safe and does not pose an unreviewed safety question.

- Conservative operating limits for primary-to-secondary leakage and state of the art leakage detection systems are in place.

- Actual primary-to-secondary leakage for past and current operating cycles has been very low.

- Operation of North Anna Unit 1 is requested for approximately 3 additional months (i.e., through April 1992) prior to the next steam generator tube inspection.

DISTRIBUTION LIST FOR MEETING SUMMARY
DATED: January 23, 1992

Docket File
NRC & Local PDRs
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