

January 16, 1990

Docket No. 50-318

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LICENSEE: Baltimore Gas and Electric Company (BG&E)
 FACILITY: Calvert Cliffs 1/2
 SUBJECT: SUMMARY OF MEETING HELD ON JANUARY 8, 1990 -
 PRESSURIZER REPAIR PLAN

The meeting was held at the One White Flint North Office in Rockville, Maryland. A list of attendees is attached as Enclosure 1.

Some of the reference material supplied by the licensee was proprietary. Enclosure 2 is the non-proprietary portion of this reference material. All topics outlined on the AGENDA page were addressed during the meeting.

The purpose of the meeting was to discuss various aspects of the licensee's plan for repair of the leaks in the Unit 2 pressurizer heater penetrations. Normally meetings between the NRC technical staff and licensees are open to the public, petitioners, intervenors, or other parties to attend as observers. However, since Babcock and Wilcox (B&W) Company submitted some of the information which was discussed as trade secret information, and the NRC has approved the withholding of this information from the public in accordance with 10 CFR 2.790, the meeting was closed to the public.

No commitment to supply addition information resulted from the meeting.

Original signed by

David E. LaBarge, Project Manager
 Project Directorate I-1
 Division of Reactor Projects - I/II
 Office of Nuclear Reactor Regulation

Enclosures:

1. List of Attendees
2. Reference Material

cc: See next page

OFC	: PDI-1	: PDI-1	: PDI-1	:	:	:
NAME	: CVogan	: DLaBarge/bah	: RCapra	:	:	:
DATE	: 1/16/90	: 1/16/90	: 1/16/90	:	:	:

OFFICIAL RECORD COPY
 Document Name: SUMMARY OF MEETING

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 PDR ADOCK 05000318
 PDR

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

January 16, 1990

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A handwritten signature in dark ink, appearing to read "D. LaBarge".

David E. LaBarge, Project Manager
Project Directorate I-1
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Enclosures:

1. List of Attendees
2. Reference Material

cc: See next page

Mr. G. C. Creel
Baltimore Gas & Electric Company

Calvert Cliffs Nuclear Power Plant

cc:

Mr. William T. Bowen, President
Calvert County Board of
Commissioners
Prince Frederick, Maryland 20678

Mr. Joseph H. Walter
Engineering Division
Public Service Commission of Maryland
American Building
231 E. Baltimore Street
Baltimore, Maryland 21202-3486

D. A. Brune, Esq.
General Counsel
Baltimore Gas and Electric Company
P. O. Box 1475
Baltimore, Maryland 21203

Ms. Kirsten A. Burger, Esq.
Maryland People's Counsel
American Building, 9th Floor
231 E. Baltimore Street
Baltimore, Maryland 21202

Mr. Jay E. Silberg, Esq.
Shaw, Pittman, Potts and Trowbridge
2300 N Street, NW
Washington, DC 20037

Ms. Patricia Birnie
Co-Director
Maryland Safe Energy Coalition
P. O. Box 902
Columbia, Maryland 21044

Mr. W. J. Lippold, General Supervisor
Technical Services Engineering
Calvert Cliffs Nuclear Power Plant
MD Rts 2 & 4, P. O. Box 1535
Lusby, Maryland 20657

Resident Inspector
c/o U.S. Nuclear Regulatory Commission
P. O. Box 437
Lusby, Maryland 20657

Mr. Thomas Magette
Administrator - Nuclear Evaluations
Department of Natural Resources
580 Taylor Avenue
Tawes State Office Building
PPER R3
Annapolis, Maryland 21401

Regional Administrator, Region I
U.S. Nuclear Regulatory Commission
475 Allendale Road
King of Prussia, Pennsylvania 19406

LIST OF ATTENDEES

PARTICIPANTS

R. Capra
D. McDonald
R. Hermann
J. Ramsey
W. Koo
C. Sellers
H. Kaplan
M. Hum
D. LaBarge
J. Norris
B. Rudell
R. Pond
J. Osborne
R. Cantrell
J. Taylor
D. Graf
C. Carr
C. Thomas
J. Shepard
J. Houstrup

ORGANIZATION

NRC
NRC
NRC
NRC
NRC
NRC
NRC
NRC
NRC
BG&E
BG&E
BG&E
BG&E
BG&E
BG&E
BG&E
B&W
B&W
B&W
Structural Consultant
to BG&E

BGE 301 MM3 180643 3/14

**CALVERT CLIFFS UNIT 2
PRESSURIZER HEATER SLEEVE
REPAIR / REPLACEMENT
PLAN SUMMARY**

AGENDA

- | | |
|---|-----------------------|
| I. Introduction | Don Graf (BG&E) |
| II. Problem Overview & Original Design | Bernie Rudell (BG&E) |
| III. New Design Description and Comparison Summary With Original Design | Bernie Rudell (BG&E) |
| IV. Design Evaluation Summary | John Shepard (B&W) |
| V. Suitability (690 vs. Other Materials) | Rob Pond (BG&E) |
| VI. General Work Description | Bernie Rudell (BG&E) |
| VII. Welding & NDE Requirements | Roger Cantrell (BG&E) |
| VIII. Summary & Discussion | Don Graf (BG&E) |

MEETING'S OBJECTIVES

- I. Inform the NRC
 - A. Comply with Specific Requests by the NRC to be Informed of the Repair Process and Method

MEETING OBJECTIVES

- II. Obtain Approval for Use of Certain Code Cases, Code Editions, and Materials (Ref. BG&E Letters Dated 07/13/89 and 10/27/89)
 - A. For Use of Inconel 690 Meeting Specification SB-166 or 167 in Pressurizer Penetration Replacements With Special Requirements in Code Case N-20-3 and N-474
 - B. For Use of 1986 Edition of ASME Code per Code Case N-389
 - C. For Use of N-20-3
 - D. For Use of N-474 to Permit Use of Inconel 690 Material With a Yield Strength of 35 KSI

PROGRAM OBJECTIVES

- I. Repair the Pressurizer
 - A. Stop Leak
 - B. Repair Corrosion Susceptible Material in Penetrations

- II. Meet System Functional Requirements as Well or Better Than Original Design
 - A. Codes
 - B. Design Life
 - C. Heater Maintenance

PROGRAM OBJECTIVES

- III. Minimize Exposure Levels to as Low as Reasonably Achievable**
 - A. Maximize Automation**
 - B. Decontaminate/Shield**
 - C. Minimize Internal Entry**

- IV. Mock-Up All Evolutions**
 - A. Pre-Operational Training**
 - B. Review for Safe Practices**
 - C. Field Harden Equipment**

PROJECT ORGANIZATION

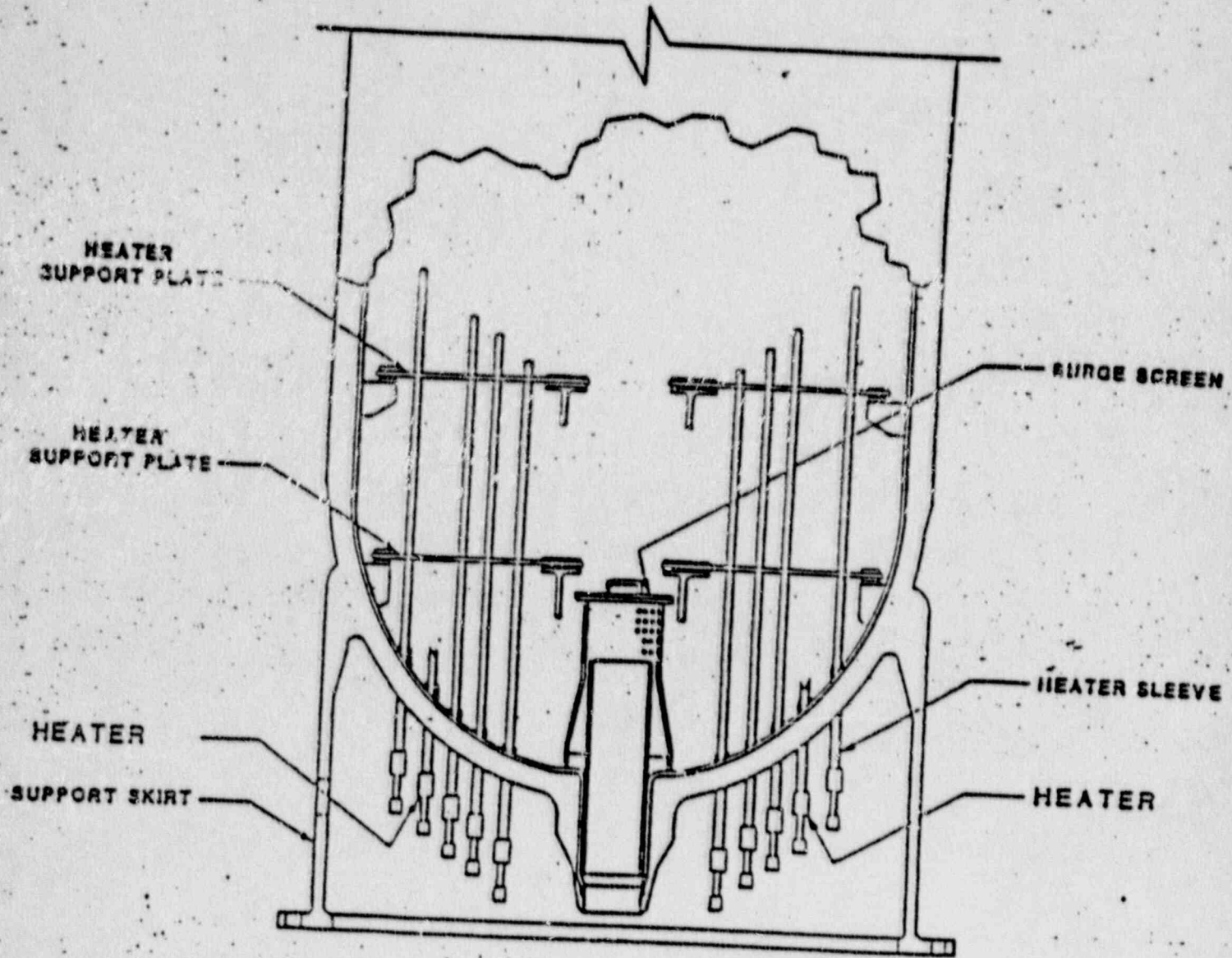
- I. Under Direct Control of Licensee
 - A. Project Manager and Qualified Technical Staff with Full Review/Approval Authority
 - B. POSRC Review/Approval of Procedures
 - C. Full-Time Production Surveillance for Safe Practices and Procedural Compliance
 - D. Radiation Control
 - E. QA Surveillance/Audit

PROJECT ORGANIZATION

- III. Executed by Experienced Vendor
 - A. Qualified QA Program
 - B. Site and Home Office Engineering
 - C. Qualified Welding and NDE Program
 - D. Experienced Site Management of Crafts

SUMMARY

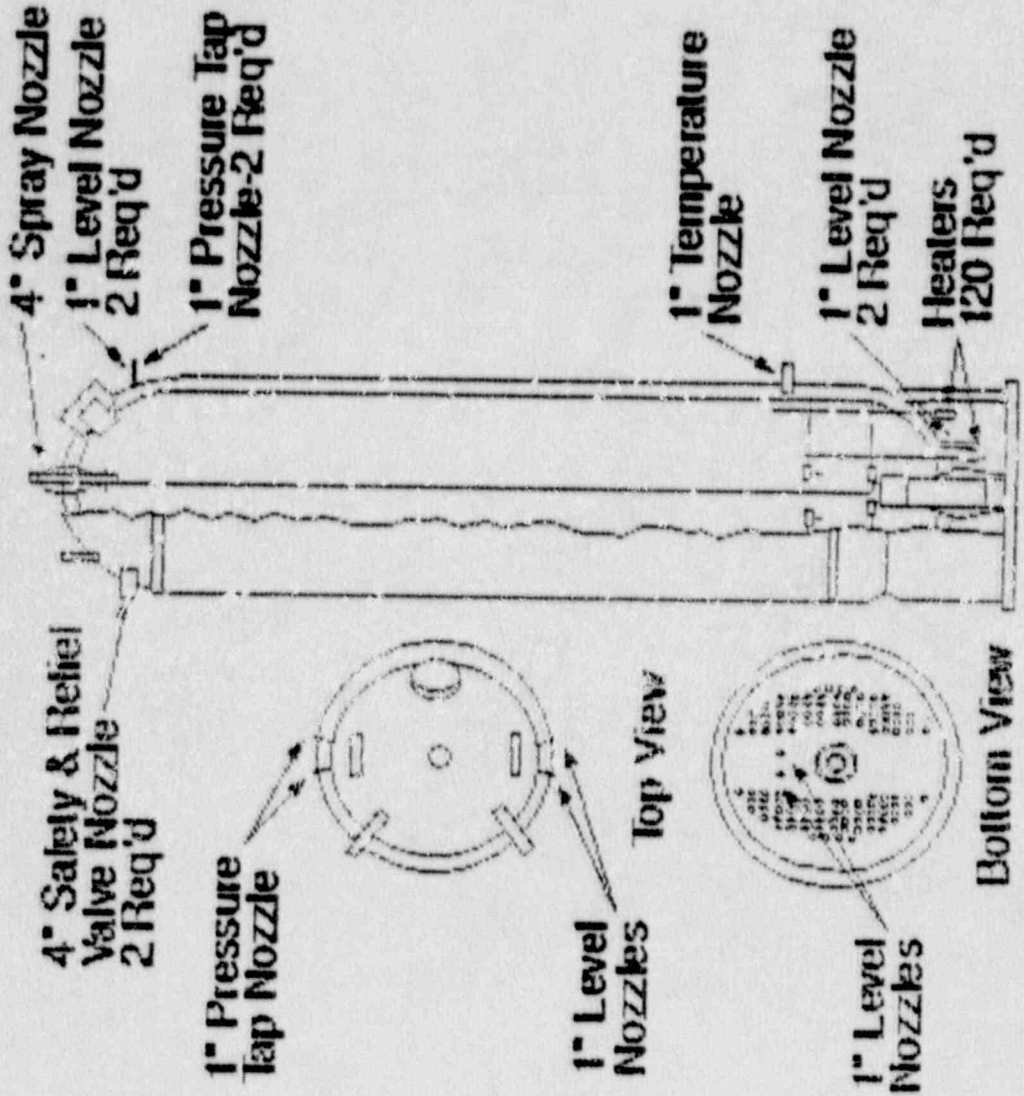
- **NRC Informed**
 - **Repair/Replacement Plan Submitted by BG&E Letter Dated 11/03/89**
 - **Material and Code Approval Requests Submitted by BG&E by Letters Dated 07/13/89 and 10/27/89**
- **Written Approvals of Materials and Code Aspects are Outstanding**



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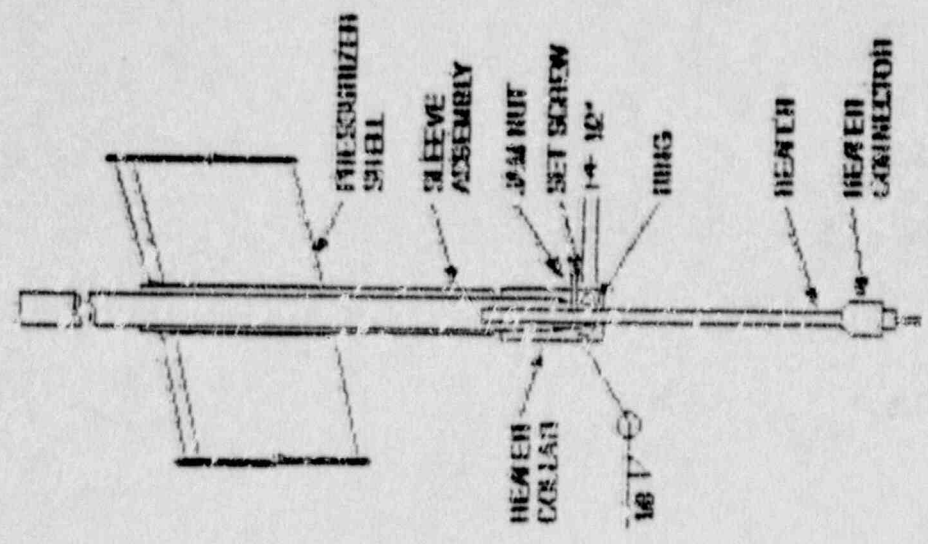
PRESSURIZER VESSEL



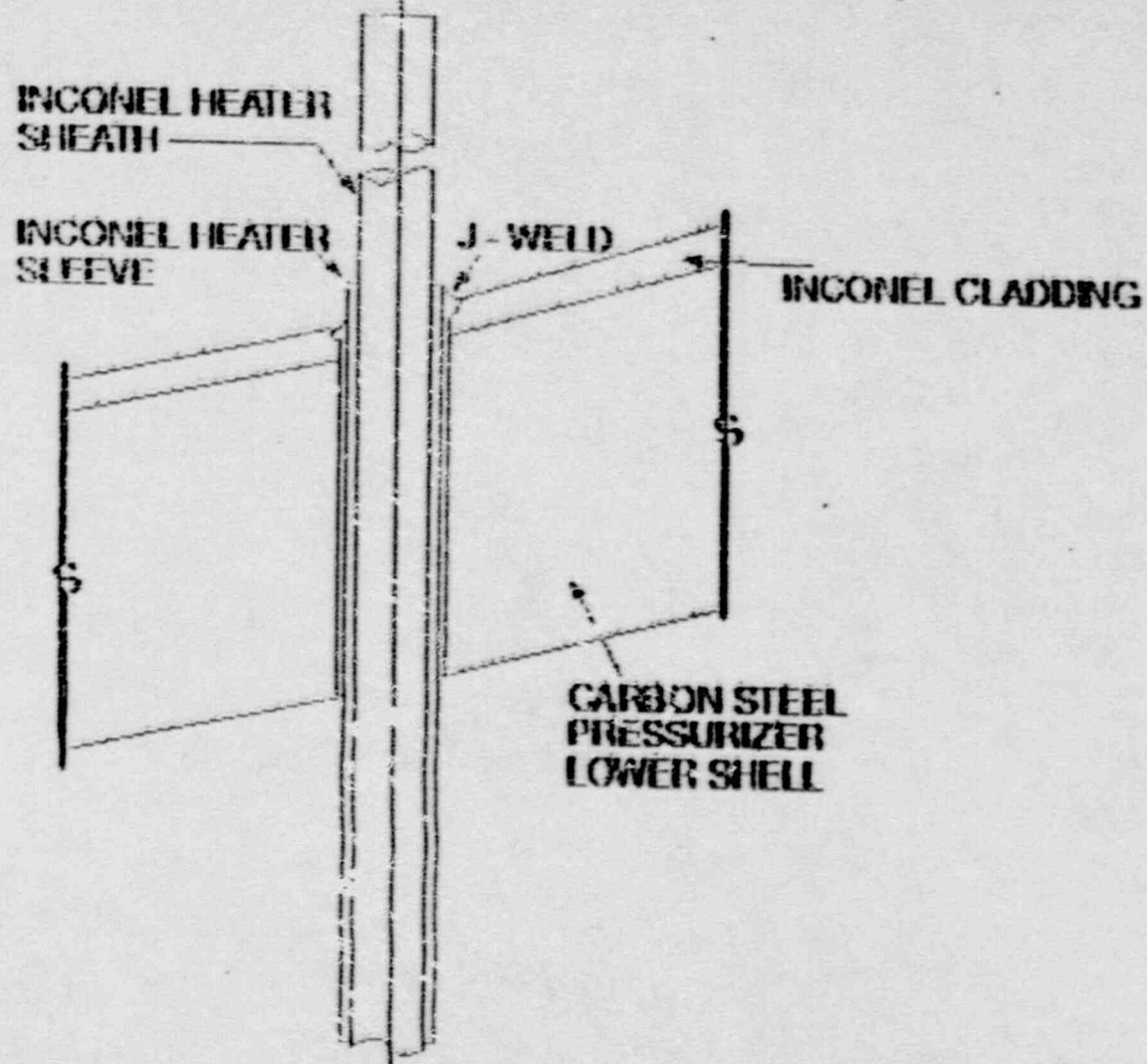
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ASSEMBLY OF HEATER



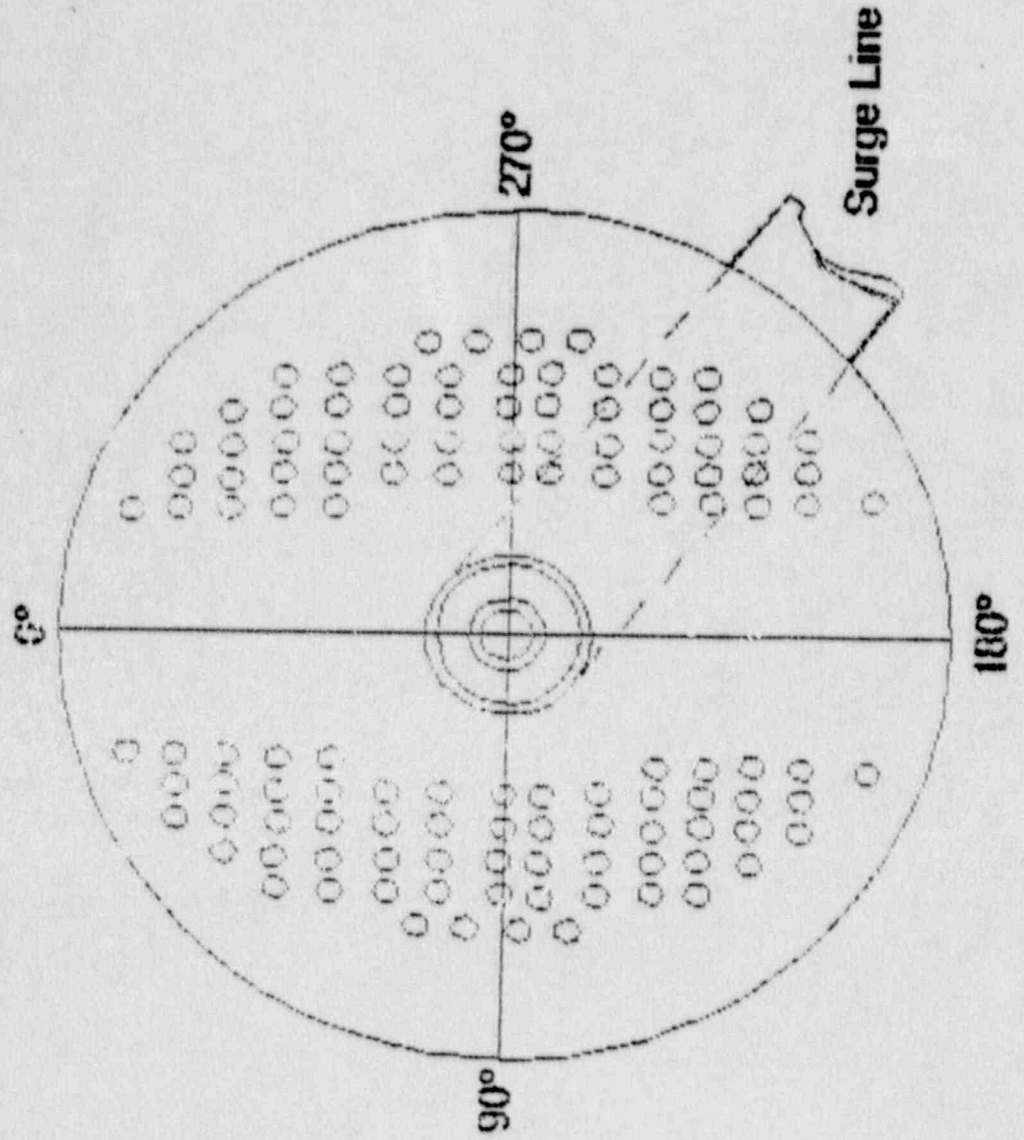
PRESSURIZER HEATER SLEEVE

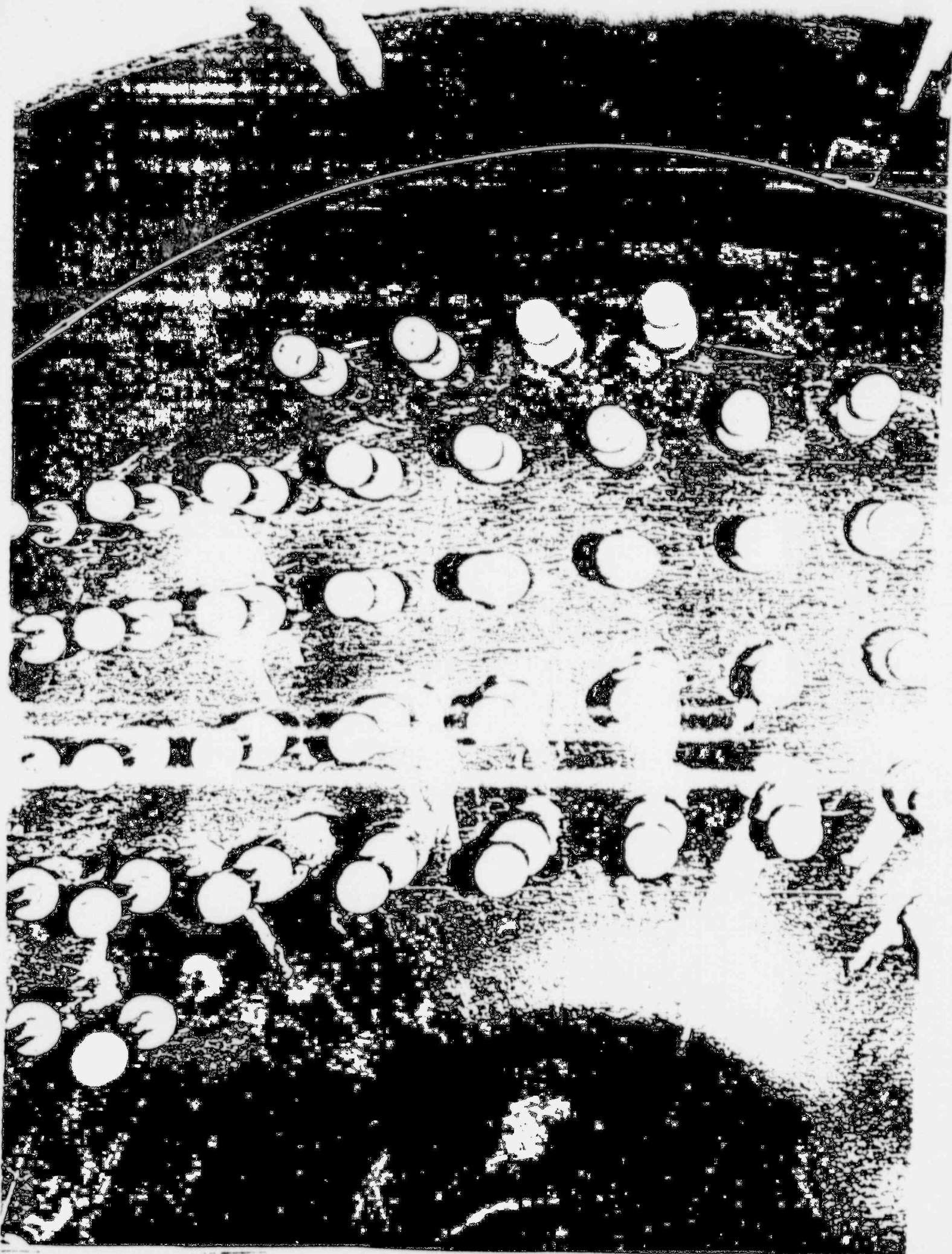


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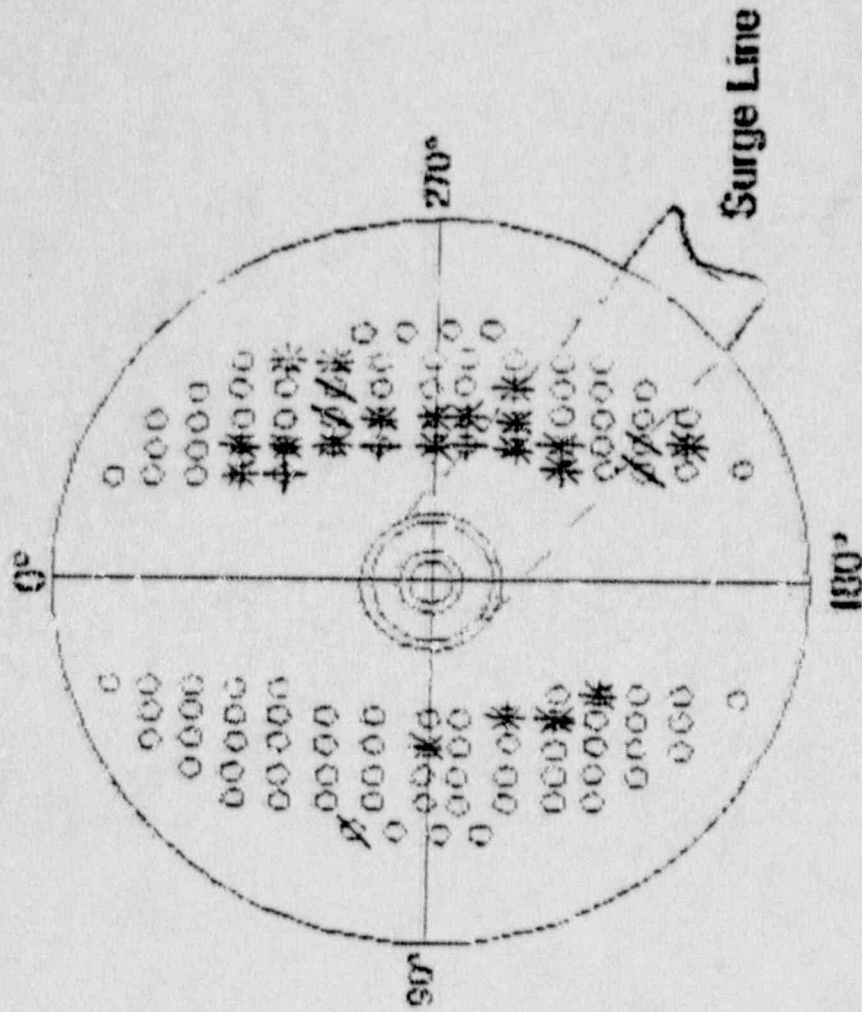
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PRESSURIZER HEATER PENETRATIONS (120)





UNIT 2 BORON LEAKS



- * - Leaking (20)
- ⊗ - Probably Leaking (3)
- ⊘ - Probably Not Leaking (5)
- - Not Leaking (92)

UNIT 2

HEATER SLEEVE NDE FINDINGS

- **AXIAL CRACKS ON SLEEVE ID**
- **NO CIRCUMFERENTIAL INDICATIONS**
- **EVIDENCE OF HEAVY REAMING**
- **NO INDICATIONS IN J-GROOVE WELDS**

UNIT 2

HEATER SLEEVE FAILURE ANALYSIS

- **PRIMARY WATER STRESS CORROSION CRACKING (PWSCC)**
- **PWSCC REQUIRES:**
 - 1. SUSCEPTIBLE MATERIAL
 - 2. ENVIRONMENT
 - 3. TENSILE STRESS
- **COLD WORK/RESIDUAL STRESS FROM HEAVY REAMING CONTRIBUTED TO INITIATION OF PWSCC.**