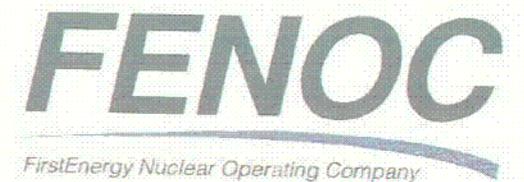
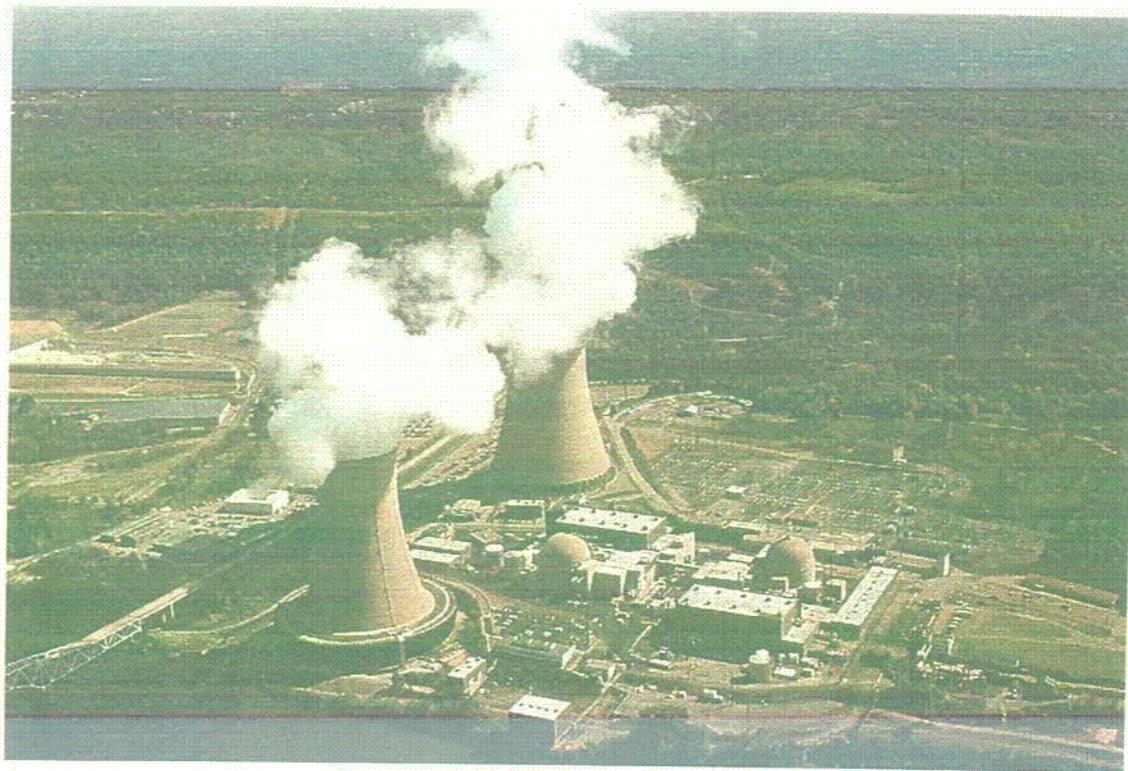


Predecisional Enforcement Conference

Expansion Joint & Preventative Maintenance - April 13, 2000



Desired Outcomes - Lew Myers

- Obtain a common understanding of the facts, corrective actions and safety significance
 - Previous licensee's corrective actions were inadequate
 - Good operator identification of damaged expansion joint, however questioning attitude provided earlier opportunity for identification
 - Corrective actions were comprehensive and timely
 - Low safety significance

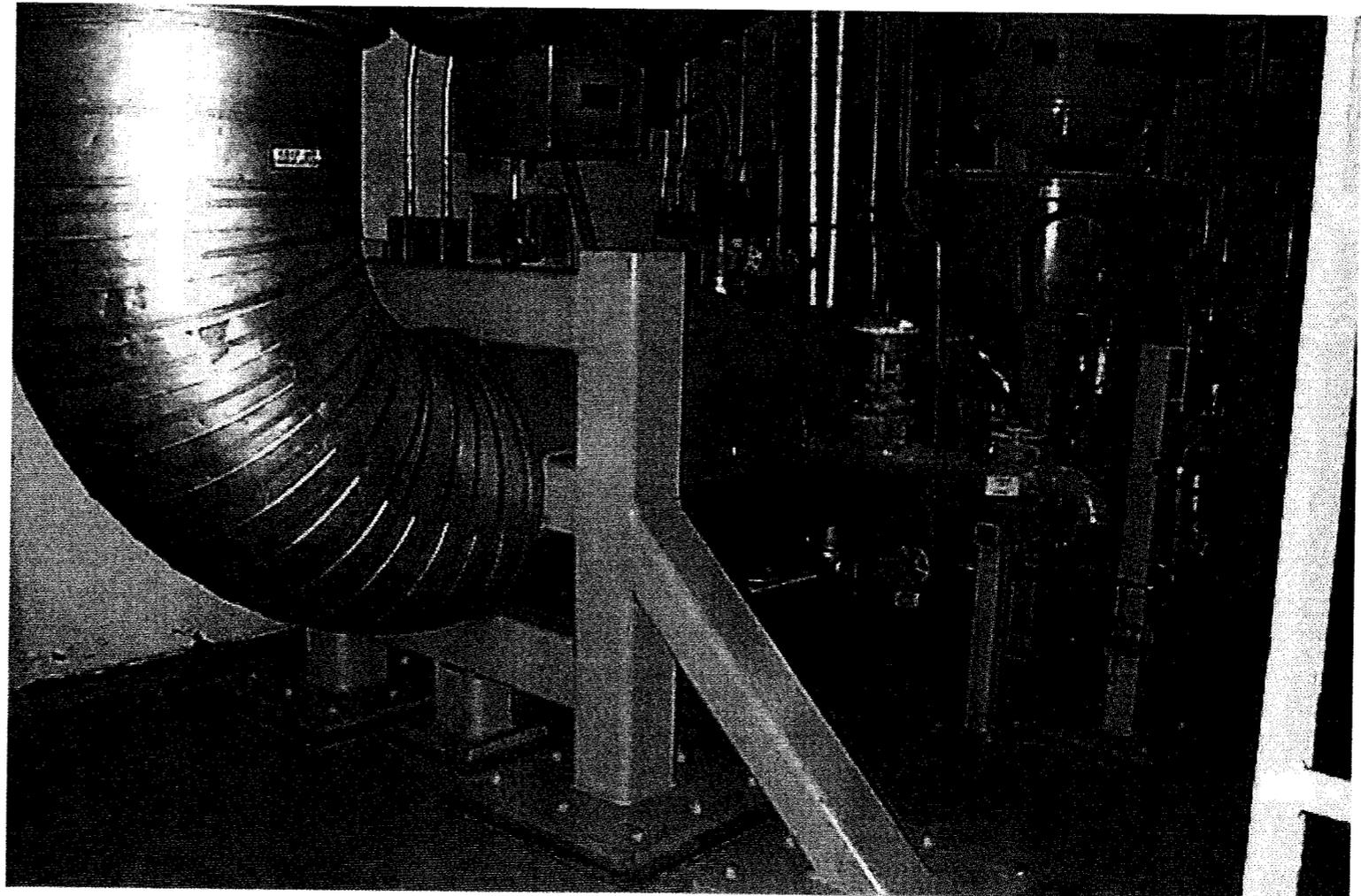
Agenda - Lew Myers

- Event Review - Kevin Ostrowski
- Event Review Summary - Kevin Ostrowski
- Cause Analysis - Dave Huff
- Corrective Actions - Dave Huff
- PM Cause and Corrective Actions Summary - Kevin Ostrowski
- Safety Significance - Ray Hruby
- Summary - Lew Myers

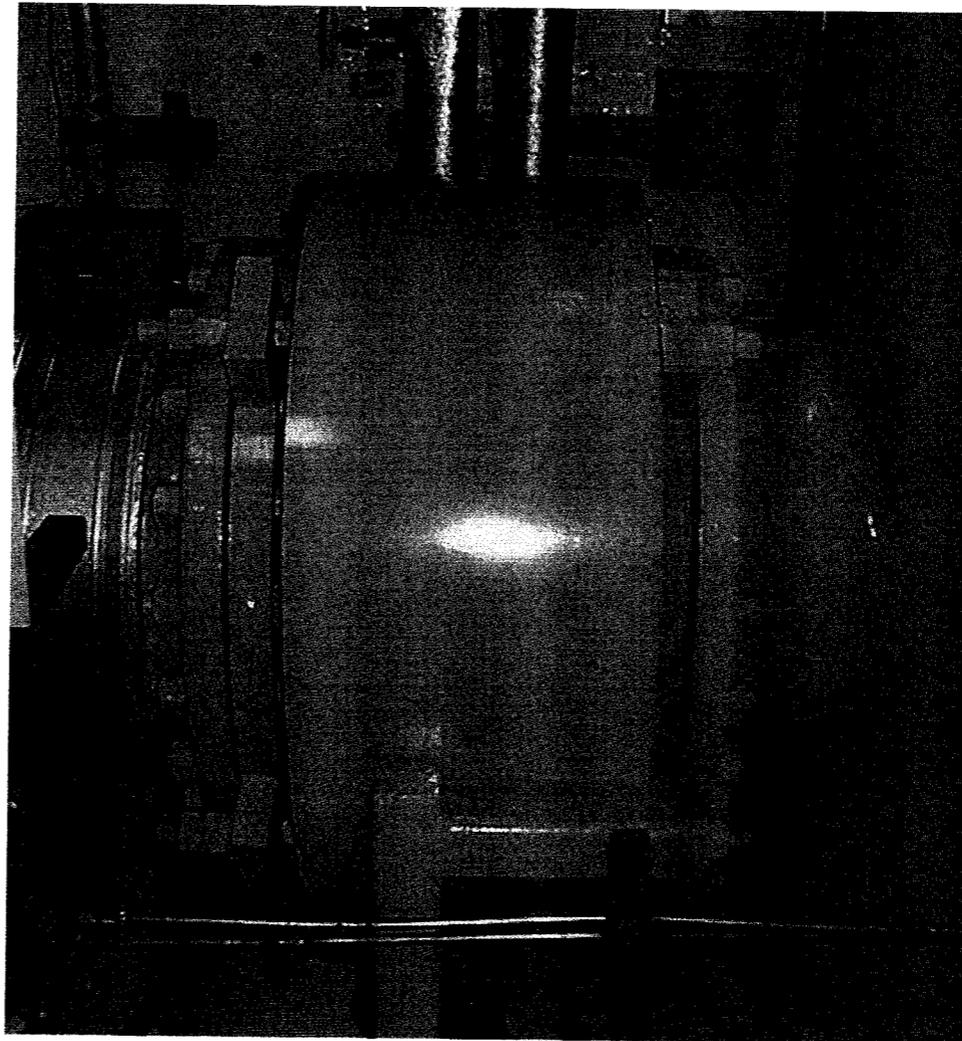
Event Review - Kevin Ostrowski

- 11/21/99 - Damaged expansion joint discovered
- 11/11/99 - Damaged pressure gauge discovered
- 11/9/99 - Slave relay test, water hammer event occurred
- 9/19/99 - PM limit date reached

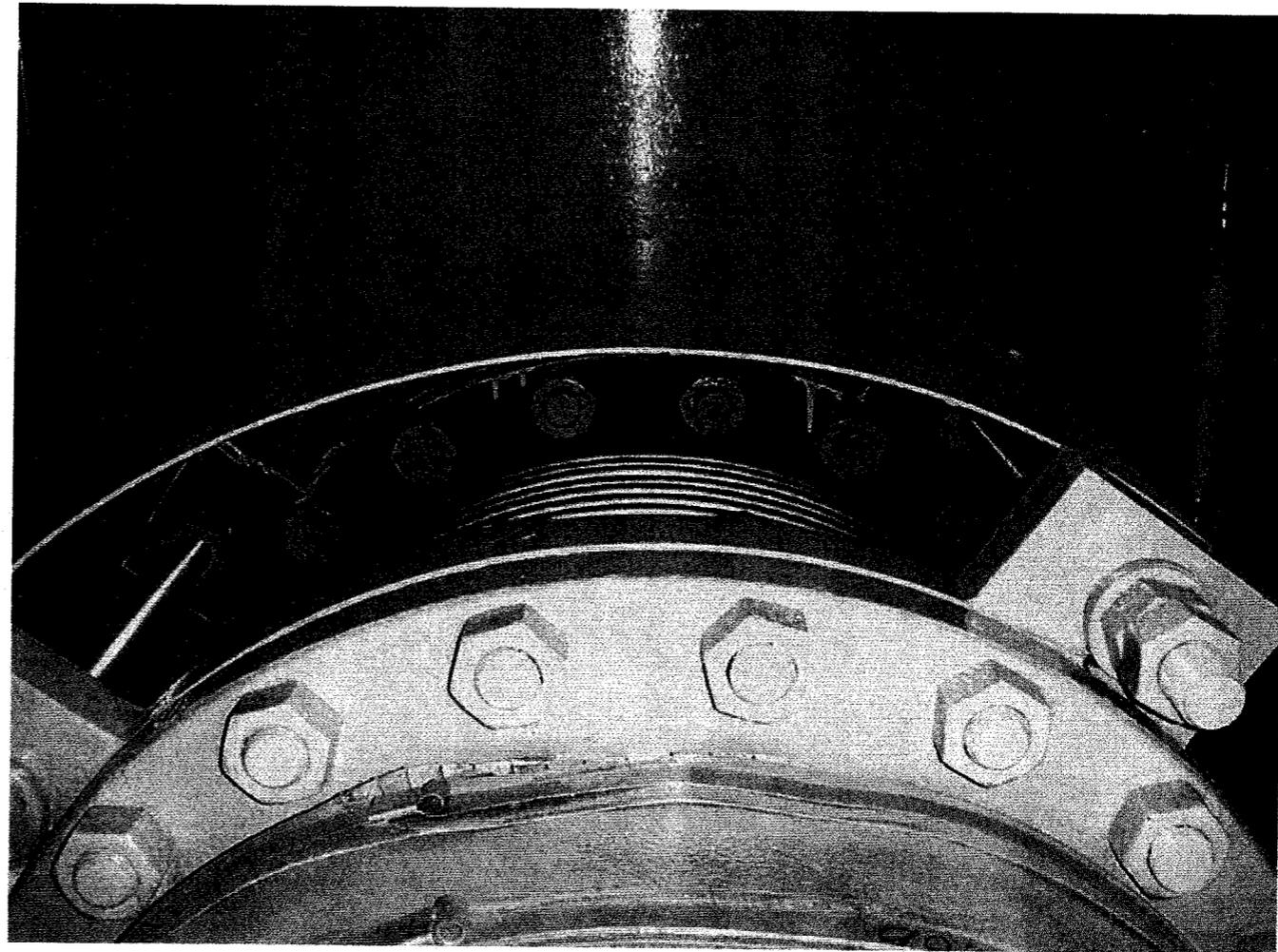
Pump Cubicle Overall View - Damaged Joint As Found



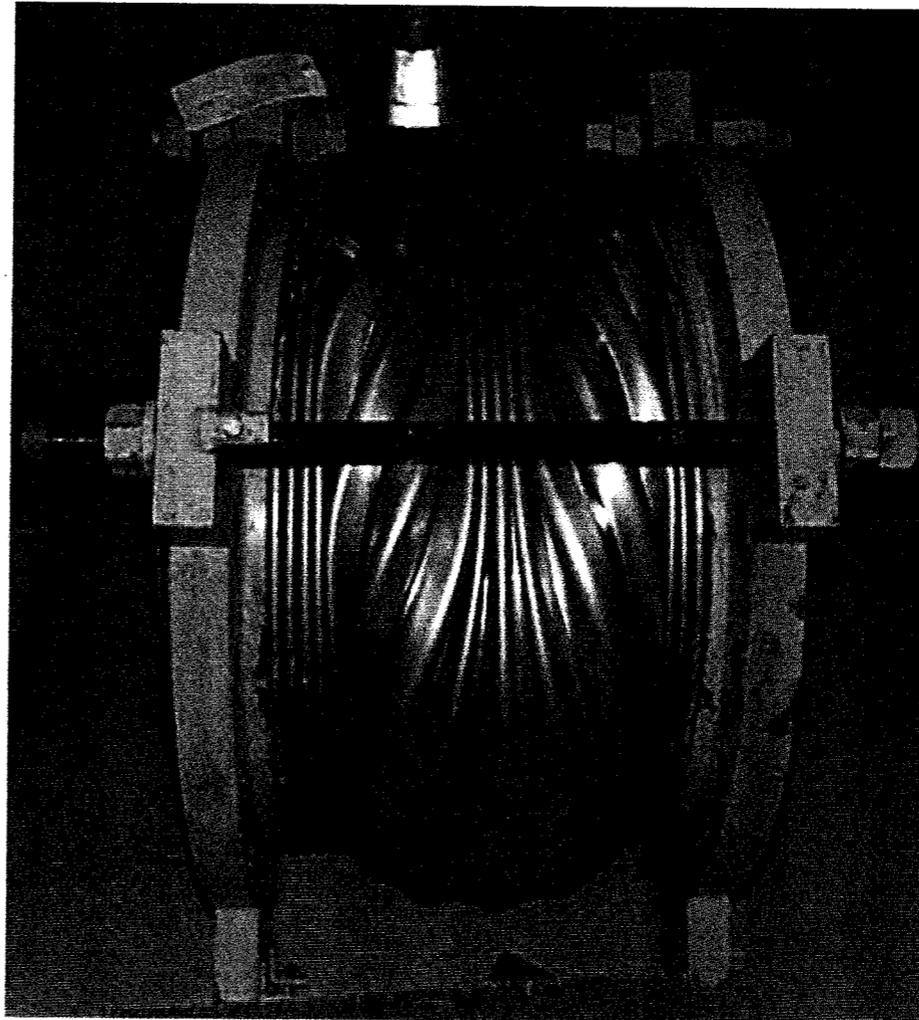
New Expansion Joint Side View



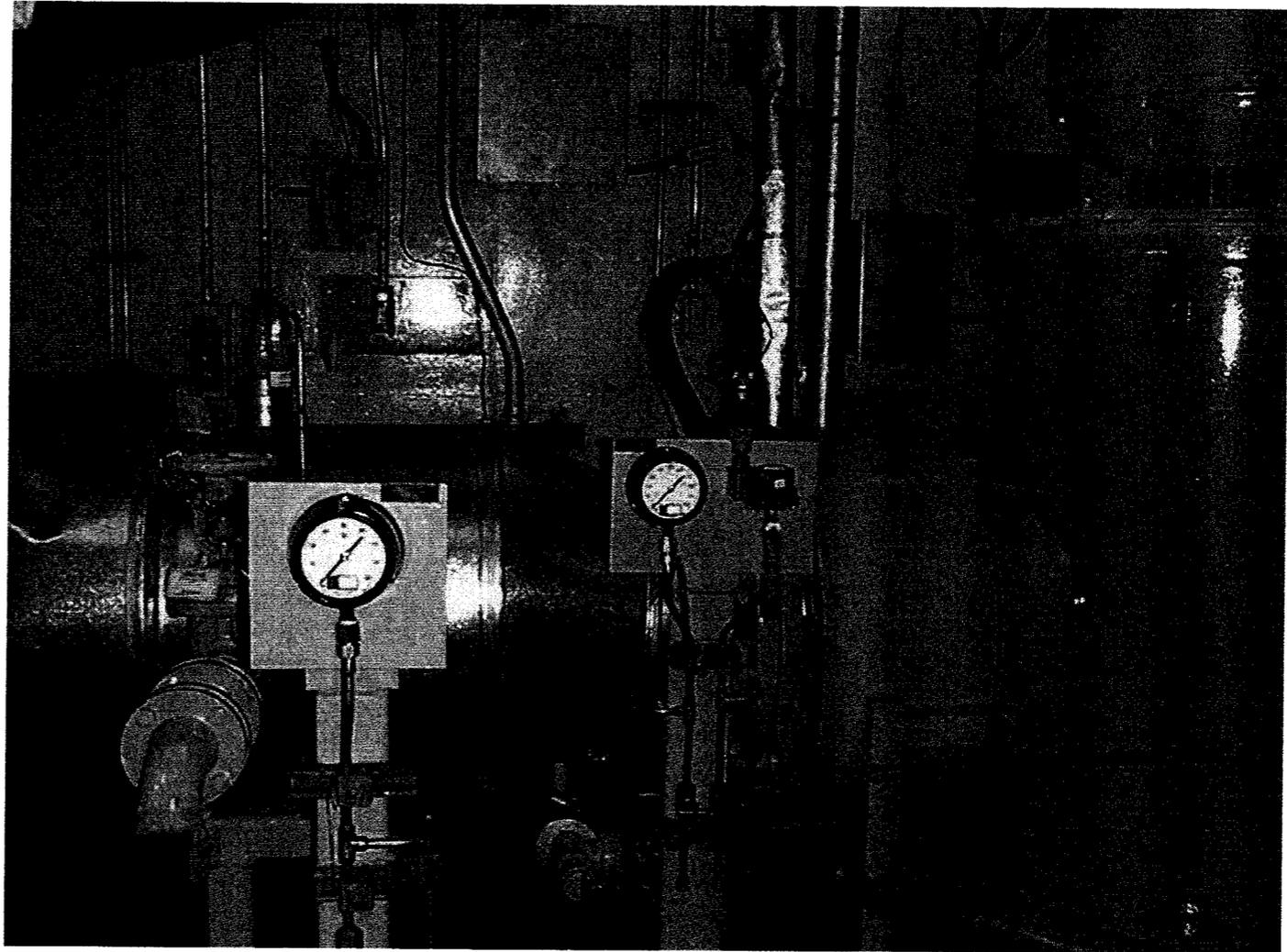
New Expansion Joint Inline View



Damaged Expansion Joint Removed



'C' Pump Pressure Gauge



Event Review - continued

- 11/21/99 - Damaged expansion joint discovered
- 11/11/99 - Damaged pressure gauge discovered
- 11/9/99 - Slave relay test, water hammer event occurred
- 9/19/99 - PM limit date reached

Event Review - continued

- 11/21/99 - Damaged expansion joint discovered
- 11/11/99 - Damaged pressure gauge discovered
- 11/9/99 - Slave relay test, water hammer event occurred
- 9/19/99 - PM limit date reached

Summary - Lew Myers

- Self identified damaged expansion joint
- Missed opportunity for earlier identification
- Comprehensive corrective actions
 - PM program requirements set
 - Management monitoring, PMs being performed
- Questioning attitude is improving
- Safety significance low

Event Review Summary

Kevin Ostrowski

- Self identified damaged joint
- Damaged gauge provided earlier opportunity to identify
- Expansion joint is covered, not readily identifiable
- Damaged joint discovered, SWS train promptly declared inoperable, CR initiated
- 'B' pump was out of service to replace VBCV

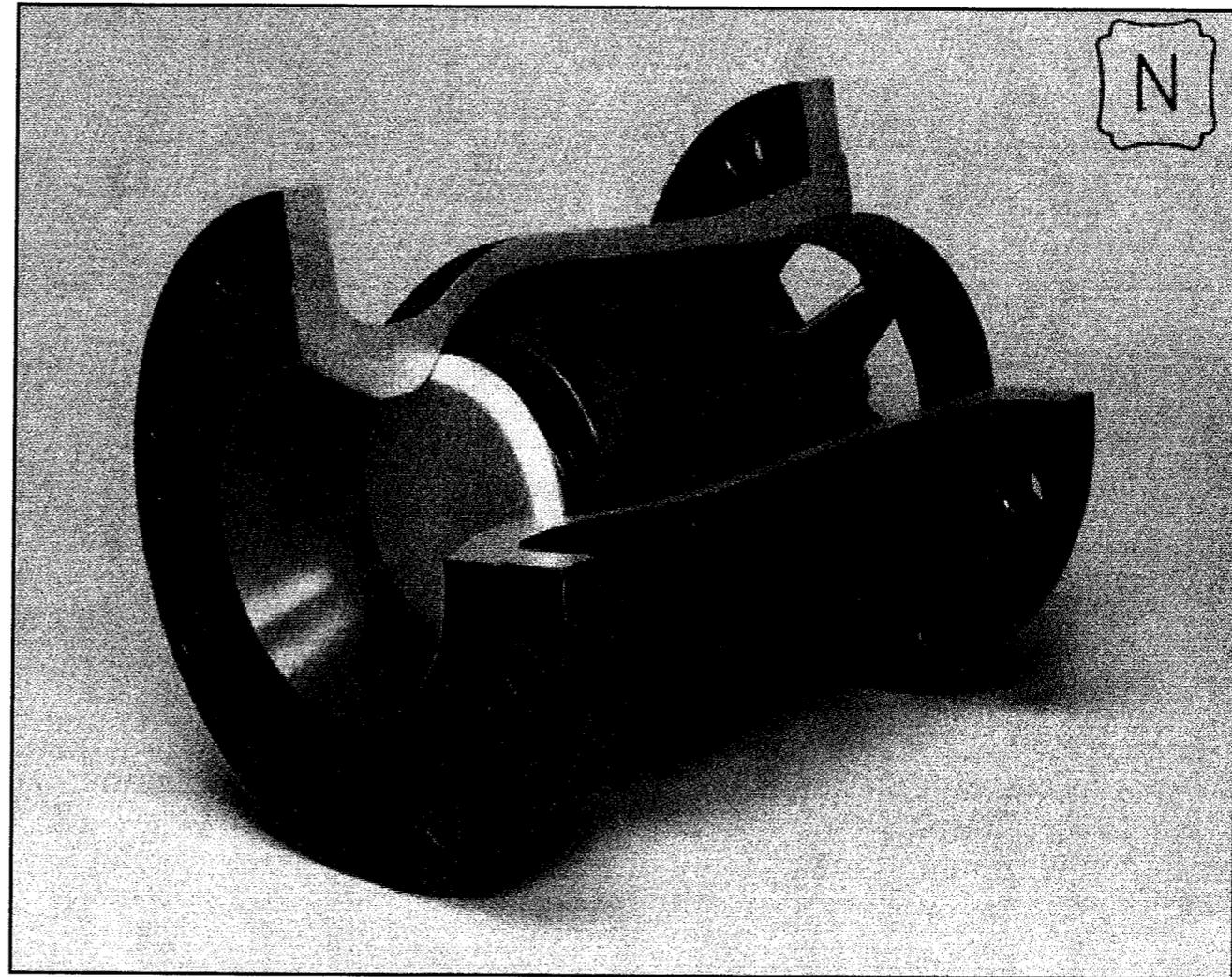
Expansion Joint Corrective Actions - Dave Huff

- Inspected affected piping, pipe supports & remaining expansion joints
- Deformed expansion joint & defective VBCV replaced, VBCV isolation valve repaired
- Evaluated affected piping, pump and valves for over-stress
- Formal root cause completed

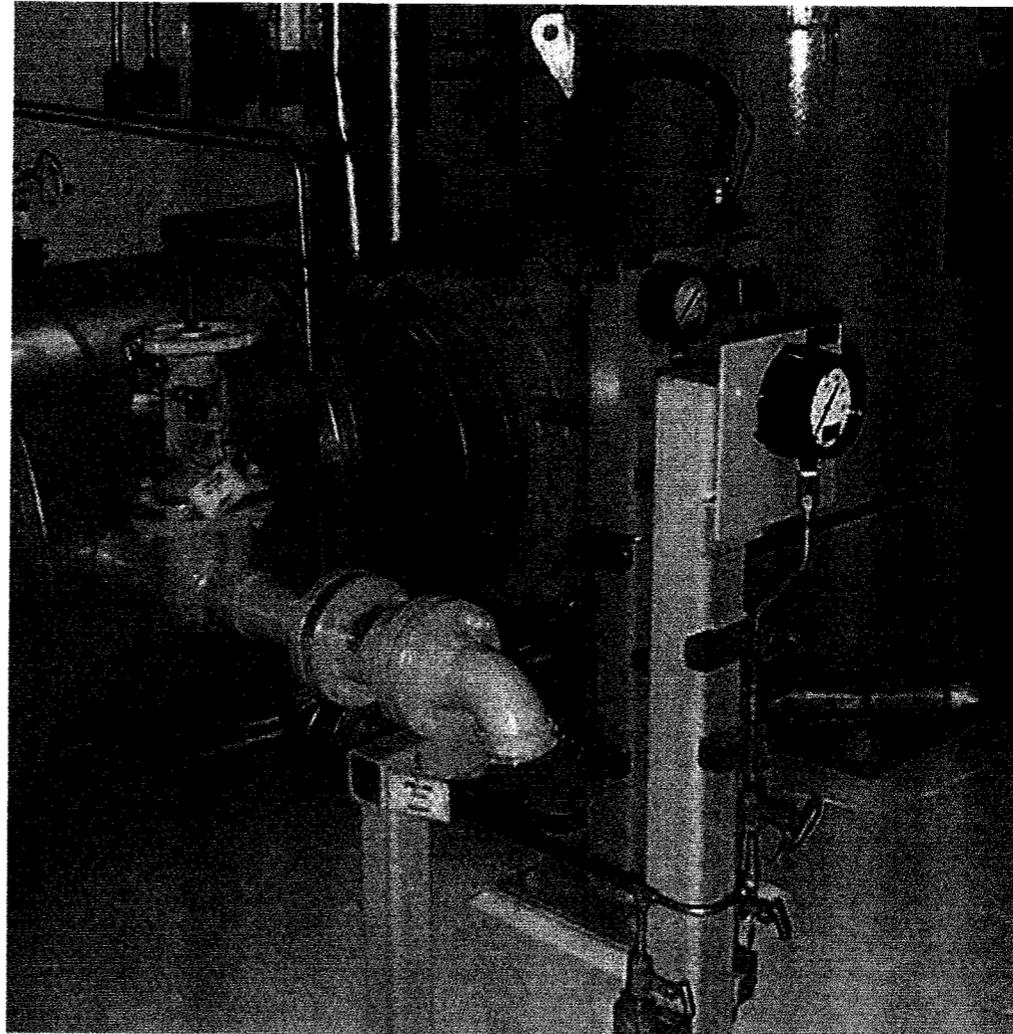
Expansion Joint Corrective Actions - continued

- Event reviewed during licensed and non-licensed retraining
- Established PM frequency for new style VBCV

New Vacuum Break Check Valve



New Vacuum Break Check Valve



Corrective Actions Summary

Kevin Ostrowski

- Personnel awareness
- Operator rounds requirements
- Preventative maintenance
- River Water/Service Water System performance review led by ISEG

Cause Summary Overdue PM on Vacuum Breaker - Kevin Ostrowski

- Lack of rigor in adherence to PM program
 - Planner rejected repetitive work order anticipating valve replacement
- Inadequate management attention
- Inadequate expectations for adherence to PM program

PM Performance

- MDAT found 88 PMs Overdue
- Currently 6 PMs Overdue

PM Corrective Actions Summary

- continued

- MDAT formed to review PM Program
- Site communication issued and provided:
 - management expectations for performing PMs
 - requirements needed to allow a PM to enter grace period
- PM procedure revised to incorporate guidance

Expansion Joint Corrective Actions - continued

- Replaced remaining VBCVs for main SWS pumps
- Remaining SWS pump VBCV isolation valves inspected and repaired as needed
- Replaced Reactor Plant (RP) and Turbine Plant (TP) RW pump VBCVs during 1R13. Inspected RW pump VBCV isolation valves during 1R13

Cause Analysis for Damaged Expansion Joint - Dave Huff

- Inadequate preventive maintenance implementation
 - Corrosion products inhibited valve function
 - Overdue PM task
- Previous licensee's corrective actions were inadequate
- Lack of understanding of VBCV failure consequences

Safety Significance - Ray Hruby

- Delta Core Damage Frequency (CDF) was low for Unit 2 and very low for Unit 1
 - If damaged expansion joint fails during LOOP, delta CDF - **LOW WHITE**
 - If damaged expansion joint remains intact during a LOOP, delta CDF - **GREEN**
 - Unit 1 delta CDF from Unit 2 expansion joint failure - **GREEN**