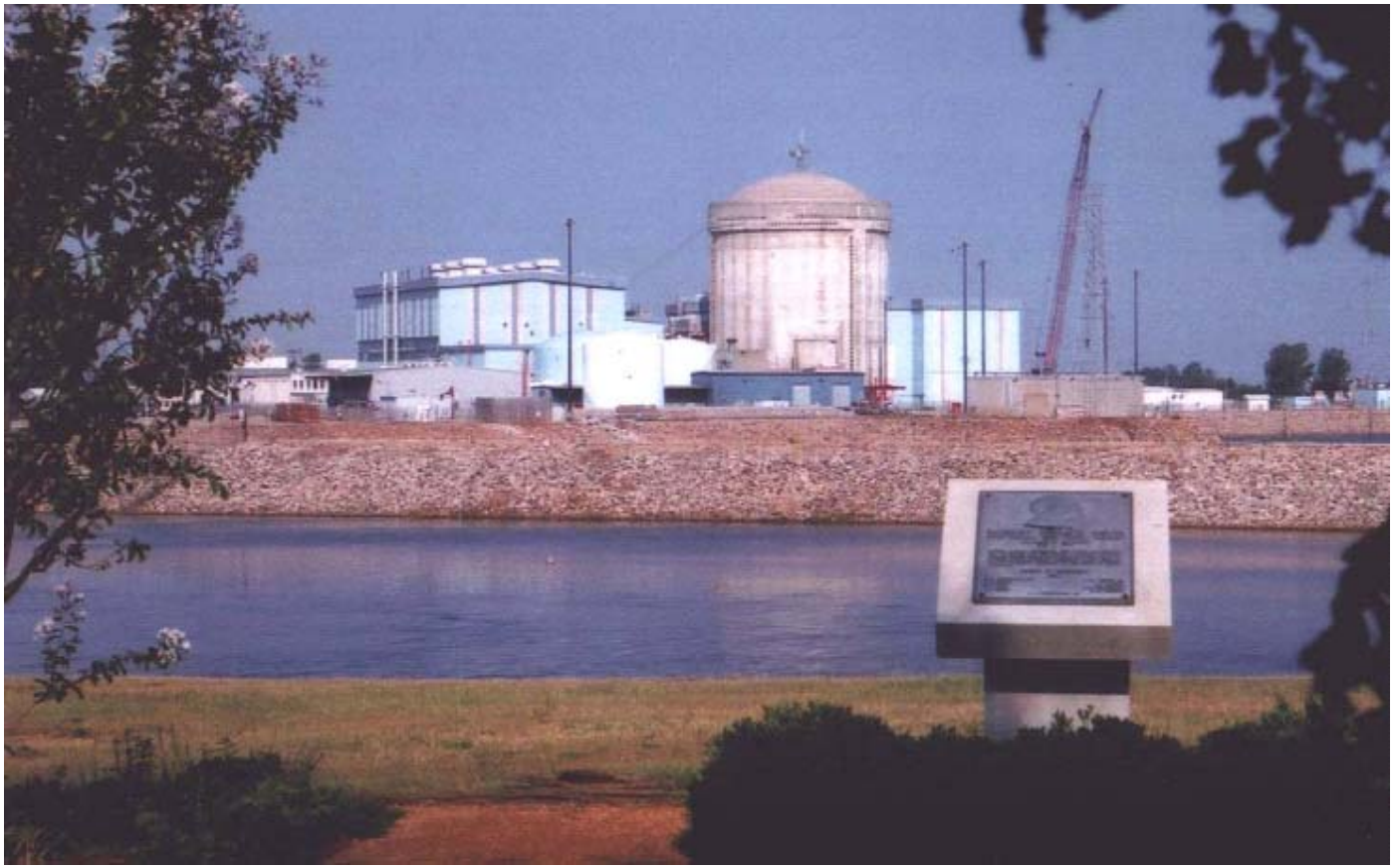
V. C. Summer Nuclear Station



SCE&G Attendees

- Steve Byrne – Senior Vice President
- Jeff Archie – Plant Manager
- Dave Lavigne – General Manager Organizational Effectiveness
- Alan Torres – Manager Planning / Outage
- Ron Clary – Manager Nuclear Licensing
- Brad Stokes – Manager Design Engineering
- Larry Bennett – Plant Support Engineering Supervisor

Purpose of Meeting

- Refuel - 14 Results
- Corrective Action Program Update
- Equipment Reliability Program Overview

Refuel -14

General Overview

Alan Torres

Refuel-14 Goal Status

- No Significant Safety Events (Actual 0)
- Duration - 36 days (Actual 46 Days)
- Dose Goal –70 REM (Actual 76 REM)
- No Industrial Safety Events (Actual 2)

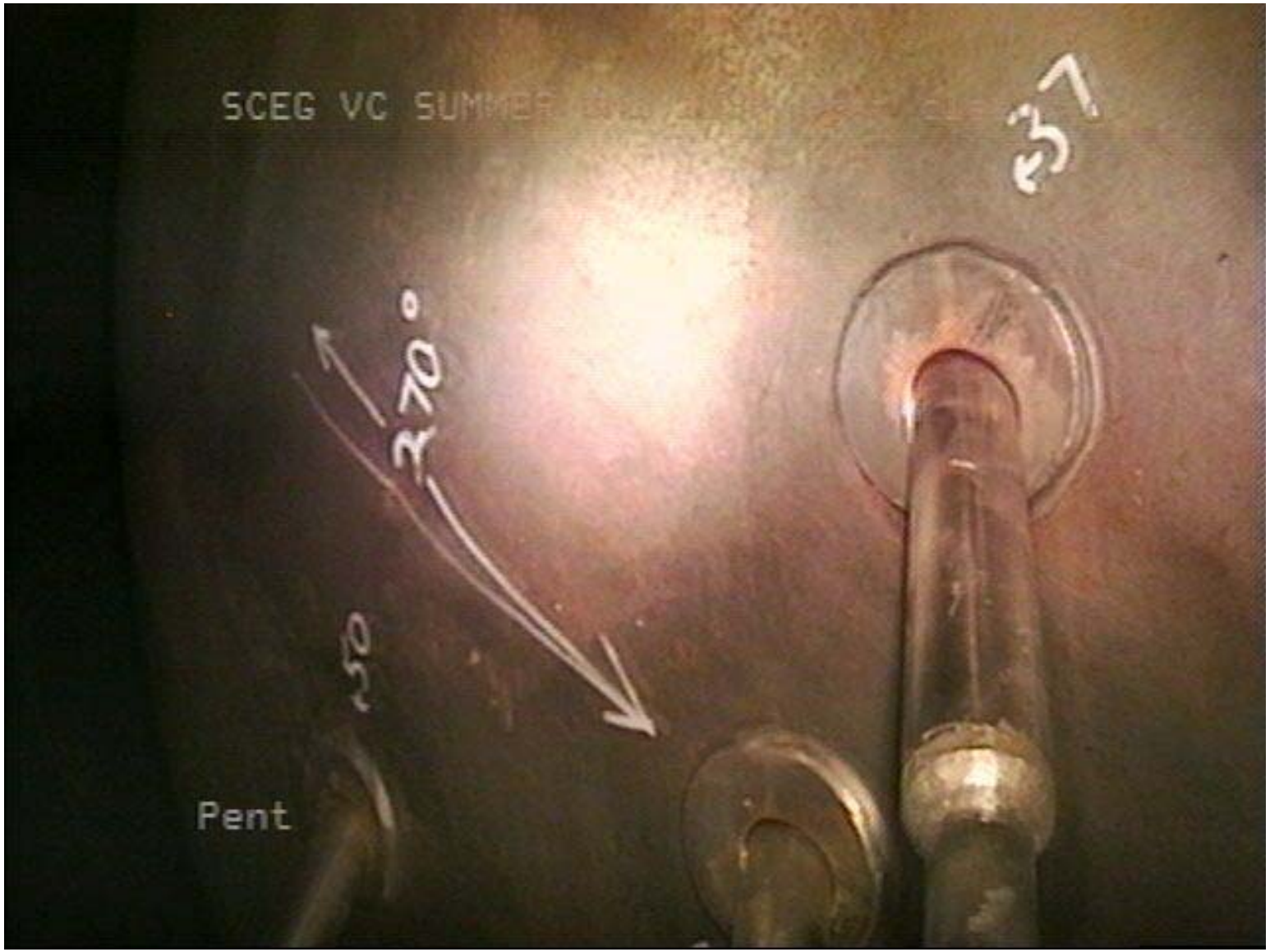
RF- 14

- Total Work
  - MWR's - Scheduled 764 / Emergent 292
  - STP's - Scheduled 1174 / Emergent 42
  - PM's - Scheduled 2602 / Emergent 8
  - ECR's - Scheduled 55 / Emergent 11
- Total of 4948 Documents Worked
- Scope Growth of 7.13%

Major Work Activities

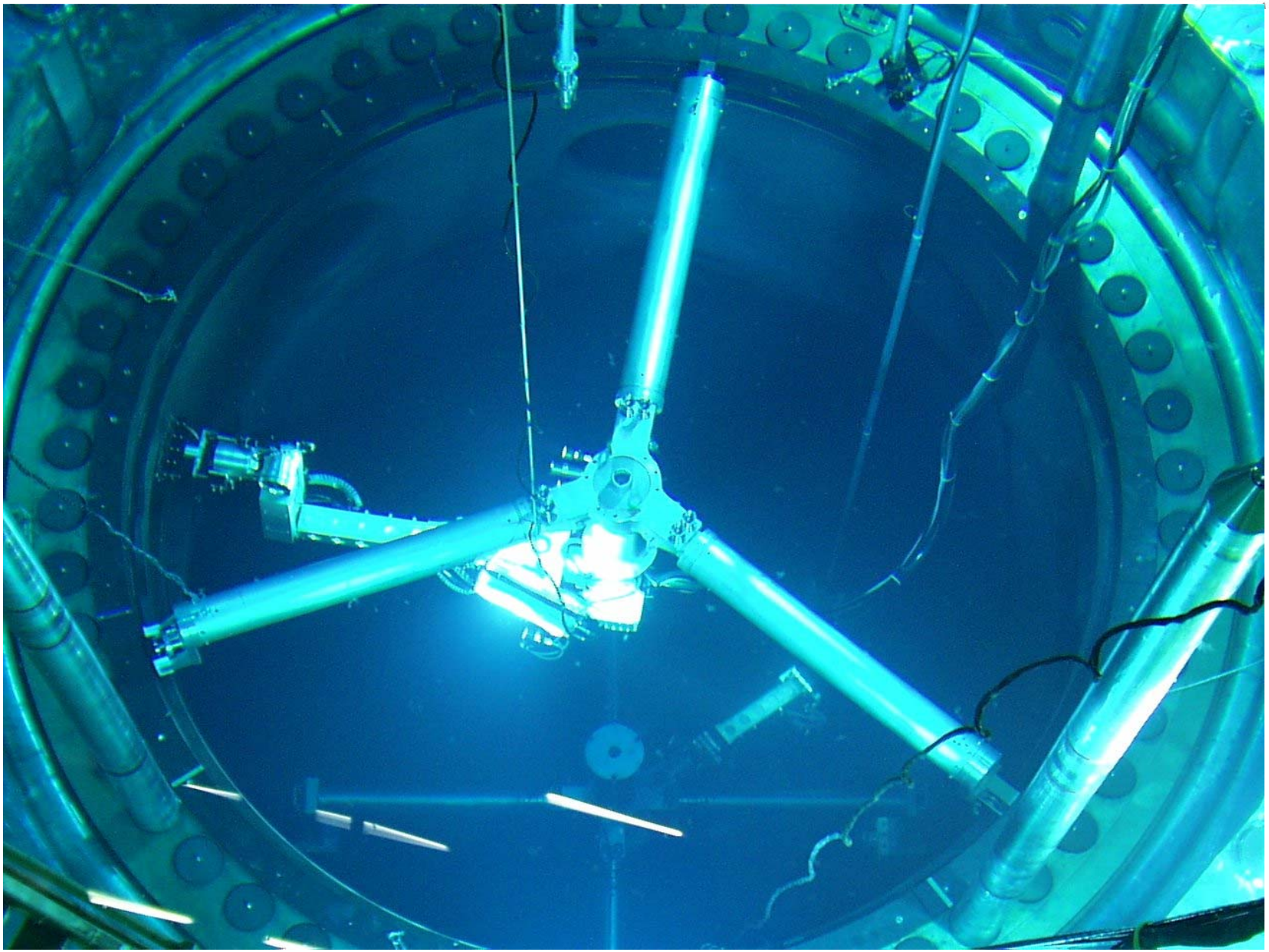
- Reactor Vessel
  - Ten Year ISI
  - Bare metal visual inspections – Head/BMI
- Main Generator Inspection
- ILRT of the Reactor Building
- “A” Train Electrical Maintenance
- “B” CCW Heat Exchanger Repair and Coating
- Repair and Coat all 3 Auxiliary Condensers
- “C” RCP Motor Replacement and Seal Work

VC Summer
CRDM & Vessel Head Inspection
Penetration # 3d


SCEG VC SUMMER
37
270°
50
Pent

VC Summer
CRDM & Vessel Head Inspection
Penetration # 8B

SCEG VC SUMMER BMI INSP post cleaning
Pent. 108



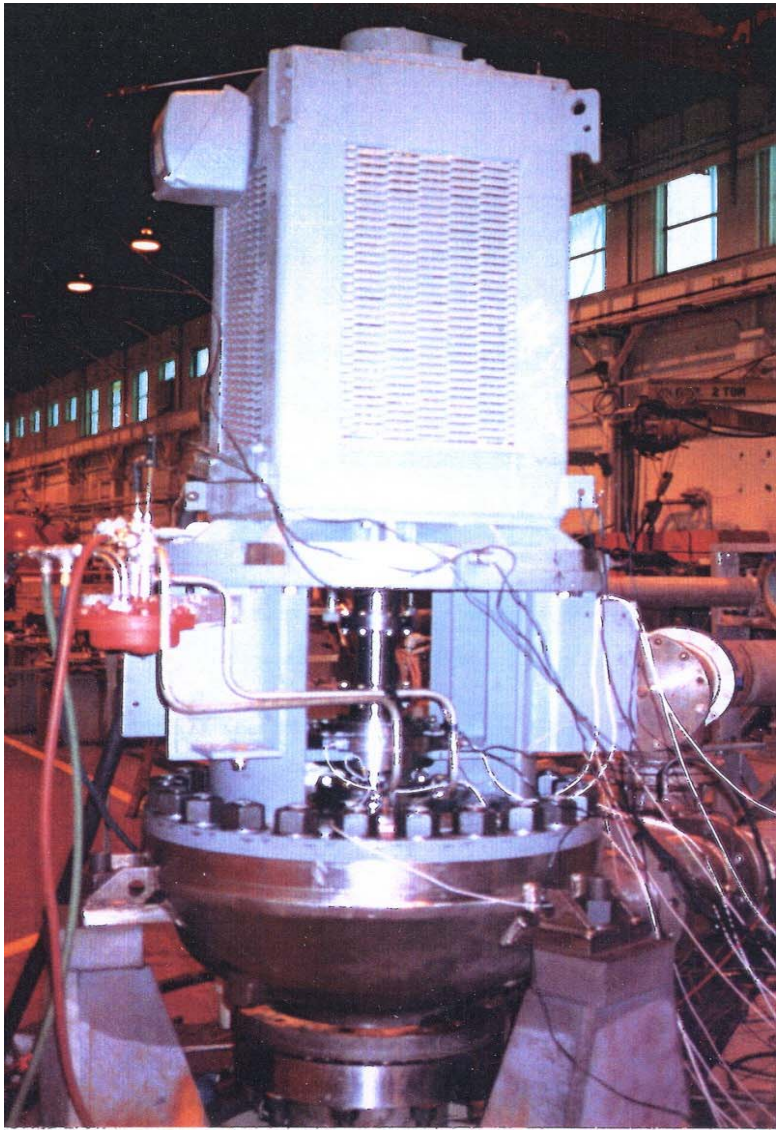
DANGER
CONFINED SPACE
ENTER BY
PERMIT ONLY
XHE0002B-CC

Refuel-14 Modifications

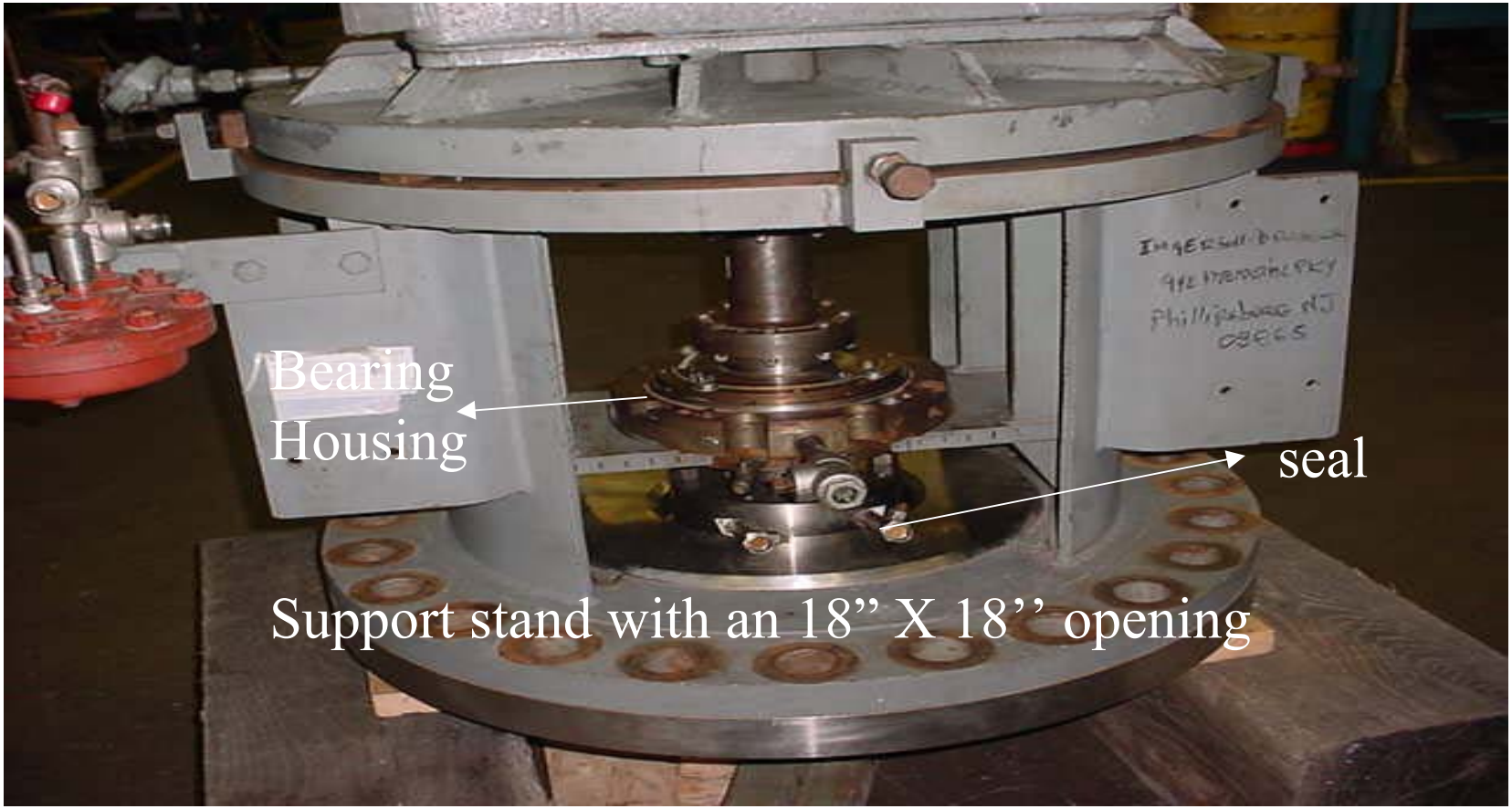
- Modifications
  - RHR Pump Seal (Concern for Leakage)
  - Complete RHR Miniflow Switch Relocation (EQ)
  - RHR Vent Addition (Helps Reduce Dose)
  - CW Pump Trip Circuitry (Operator Work Around)
  - Feedwater Heater Level Transmitter Logic Change (Operational Challenge)
  - Gravity Boration Flow Path (Operator Work Around)
- PRA Review Indicates No Change in CDF

Brief Overview of RHR Project

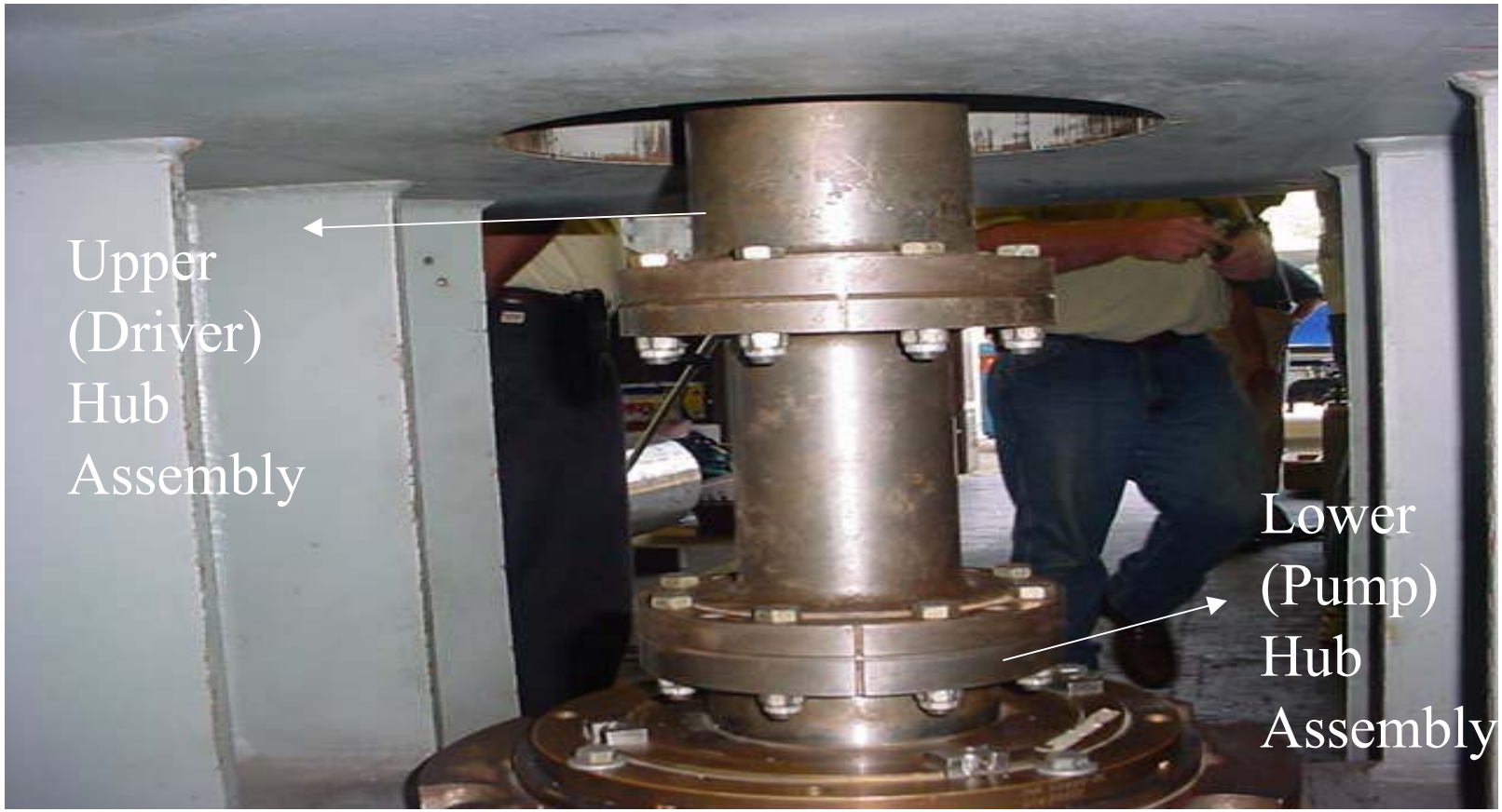
- "A" RHR Pump Modification
  - Spacer Coupling
  - Upper & Lower Hub Assembly
  - Dose Estimated 2.75 REM (Actual 0.725 REM)
- "A" RHR Vent Addition
  - Dose Estimated 1.1 REM (Actual 0.590 REM)



Modified 8X20 WD/WDF



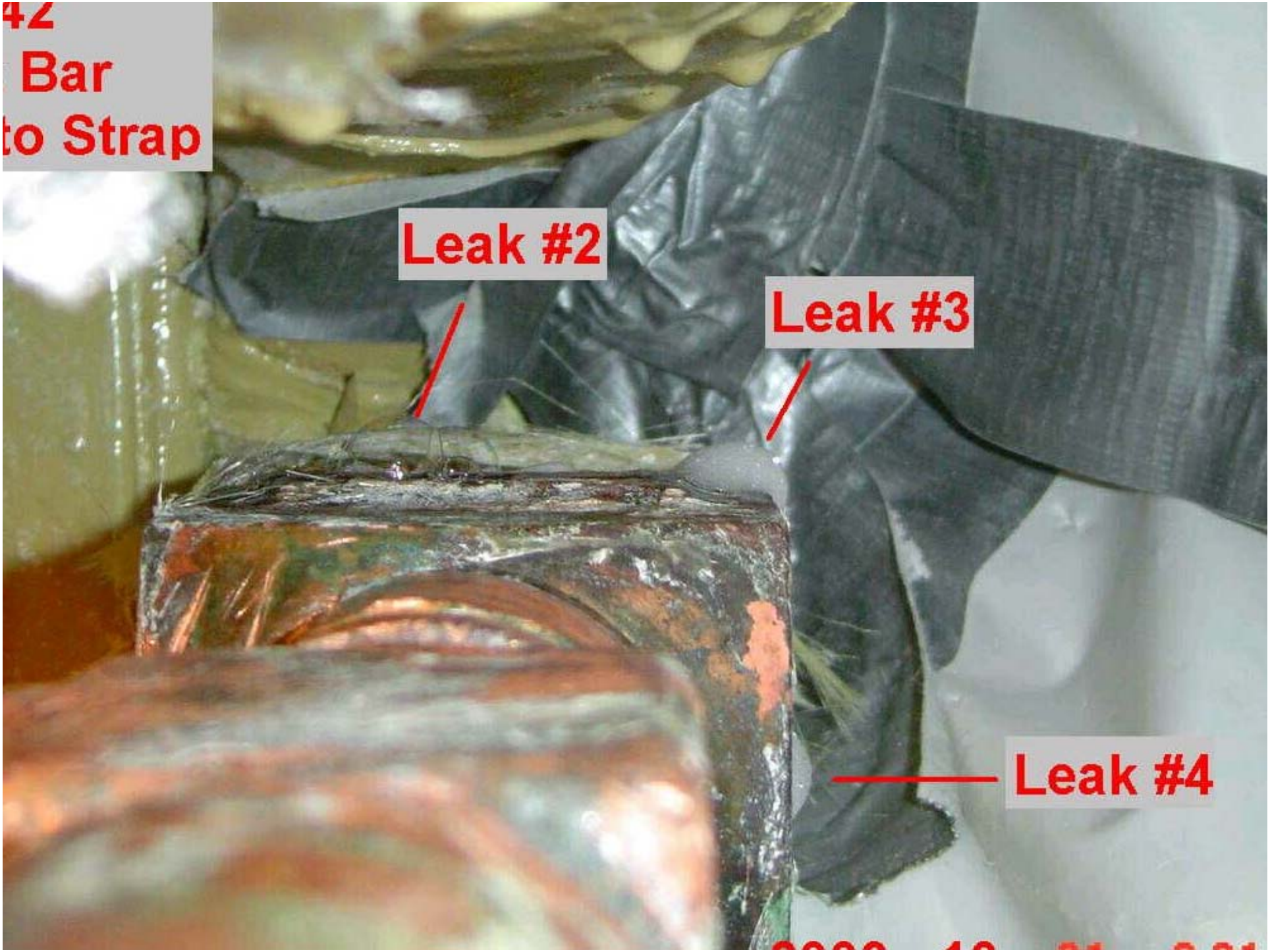
The Spacer Coupling

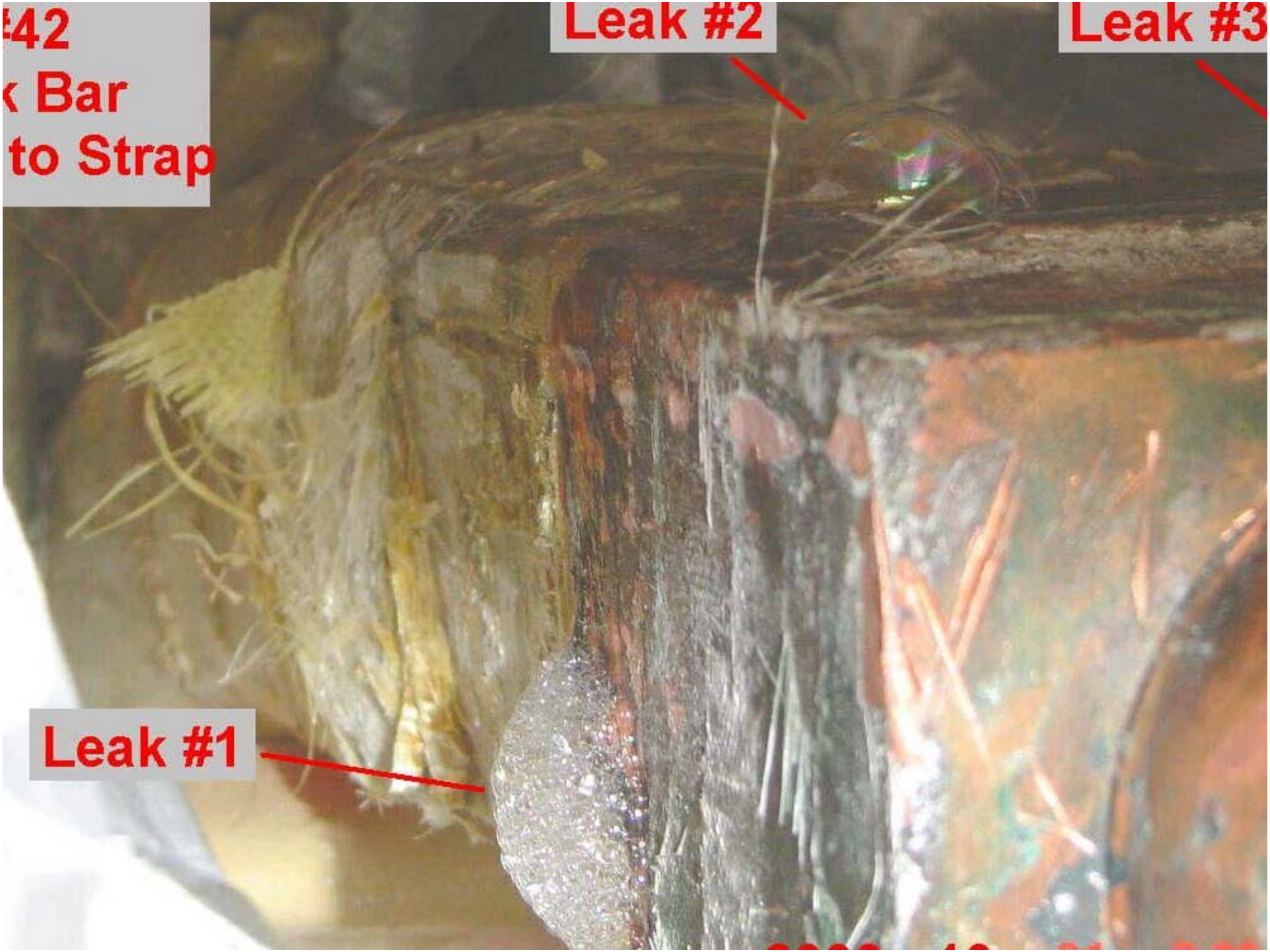


Outage Challenges

- Seal Injection Indications
  - 40 Hours Additional Work to Critical Path
  - Dose of 5.8 REM
- Main Generator Hydrogen Leaks
  - 55 Hours Delay to Startup and Critical Path
- Water Clarity Issues Prior to Reload
  - 66 Hour Delay for Core Reload to Critical Path
- Main Turbine Vibration During Startup
  - 16 Hour Delay to Tie to the Grid

RCP BOLT
Seal
Injection
Line
20 10:07 AM


42
Bar
to Strap
Leak #2
Leak #3
Leak #4


42
k Bar
to Strap
Leak #2
Leak #3
Leak #1

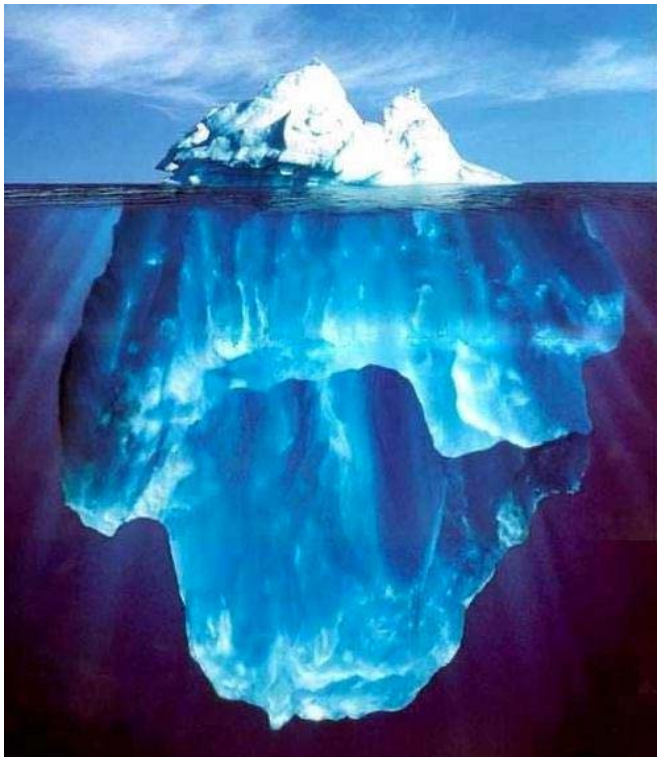
Conclusions

- We Conducted a Safe Outage
  - No Safety Significant Events
  - Two Minor Personnel Injuries
  - No Events During Startup
  - Presently No Significant Challenges for Extended Run

CORRECTIVE ACTION PROGRAM

Dave Lavigne

CORRECTIVE ACTION PROGRAM (CAP)



- CER Status
- CAP History
- Risk Review
- CAP Changes

CORRECTIVE ACTION PROGRAM (CAP)

A Look At The Numbers:

CER STATISTICS

	1998	1999	2000	2001	2002	2003
CERs Initiated	516	1527	1907	2431	3925	4526
Average Per Day:	3.035	4.1836	5.2247	6.6786	10.783	12.434
*CERs Open:	5	27	37	99	389	1378
Percent (%) Open:	0.97%	1.768%	1.94%	4.072%	9.911%	30.45%

*Open CERs have a status of Screened, Unscreened or Ready for Approval.

CORRECTIVE ACTION PROGRAM (CAP)

CAP History

- NRC PI&R Inspection, March 2001.
  - Corrective Action Program Acceptable, however:
    - Corrective Actions not well documented or completed in a timely manner.
    - Risk insights not used when classifying issues.
    - Not effectively using repetitive condition identification.

CORRECTIVE ACTION PROGRAM (CAP)

CAP HISTORY (continued)

- NRC PI&R Inspection, March 2002
  - Improvements noted in corrective action process, however:
    - CERs not always generated at threshold expected by management.
    - Human performance issues not always addressed.
    - Need more management presence at screening committee meetings.

CORRECTIVE ACTION PROGRAM (CAP)

CAP HISTORY (continued)

- WANO/INPO Peer Review, May 2003
  - Station including more lo-level deficient conditions in the CAP.
  - Increasing backlogs in CAP.
  - Multiple extensions of corrective actions.
  - Lack of acceptance of corrective actions.

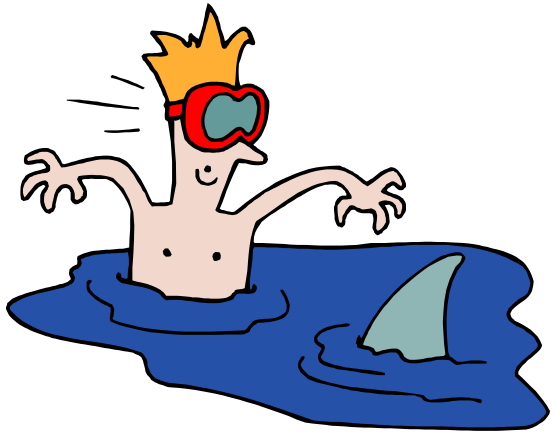
CORRECTIVE ACTION PROGRAM (CAP)

CAP HISTORY (continued)

- VCS Internal Assessments
  - QA GAP Analysis (August 2003)

    VCS Program Meets Industry Stds.
  - Root Cause analysis on repeat events (September 2003)
    - Management ownership and oversight.
    - Need better screening review of identified conditions.

RISK INSIGHTS



- CER's Reviewed by PSA group for Risk Significance
- Results Reported in Quarterly Trend Report
- Presented at VP Performance Indicator Meeting

CAP CHANGES

CAP Changes (Cont'd)

- Established Management Review Team (MRT)
  - –Composed of GM's and Managers.
    - Review Repetitive Events
    - Review Immediate Actions
    - Establish CER Ownership
    - Monitor Due Date Extensions

CAP Changes (Cont'd)

- MRT to Review Deleted CER's
- Separated Significance Determination from Condition Evaluation
- Established Priority Vehicle for Actions

CAP Changes (Cont'd)

- Reinforced Expectations
  - Unit Evaluators
  - Managers
  - Corrective Action Group

CORRECTIVE ACTION PROGRAM (CAP)

"An ounce of prevention is worth a pound of cure."

Benjamin Franklin

SUMMARY:

- Continue to adjust CAP to meet/exceed industry stds.
- Using Risk Insights to understand plant C/A issues
- Mgmt team committed to self identify and learn from C/A process

V. C. Summer Nuclear Station

Equipment Reliability Improvement Overview

Larry Bennett

Overview

Previous Activity

Future plans

Benchmarking

NEI Equipment Reliability Benchmarking in 2002

6 Plants Visited for Best Practices

- Prioritization
- Long Range Planning
- Plant Health Committee

Self Assessment

- Gap Analysis to INPO AP-913 Completed in November 2002
- Areas Noted for Improvement:
  - System Health Reports do not effectively drive corrective actions and communicate long range plans
  - Long term planning for SSC's needs improvement
  - Equipment problems are not effectively prioritized
  - Critical component classifications not well established
  - PM program improvements needed

INPO Equipment Performance Assist Visit

- Conducted in November of 2002
- Validated Self Assessment
- Developed Action Plans for Focus Areas
  - Prioritization
  - PM Program
  - Predictive Maintenance

Plant Health Committee

- PHC Created in November of 2002
- Engineering, Operations, Maintenance, Scheduling, HP, Chemistry
- Prioritization of Equipment Issues Completed January 2003
- PHC Focus List Developed, Communicated to Site
  - Initial list had 15 focus issues
  - Presently have 10 focus issues
    - 8 removed, 3 added

2003 INPO Plant Assessment

Areas for Improvement in Equipment Reliability

- Plant trips due to equipment issues
- Unresolved equipment issues
- Some reoccurring equipment issues

Plans for 2004

"Equipment Reliability Improvement Project"

Equipment Reliability Improvement Project (ERIP)

4 Integrated Phases of Work Aligned with Recognized Industry Standards:

- NEI Standard Nuclear Performance Model
- INPO AP-928, Work Management Process
- INPO AP-913, Equipment Reliability Process
- EPRI PM Basis Documents

Equipment Reliability Improvement Project

ERIP Used at:

- Susquehanna
- Calloway
- Columbia
- Farley – in progress
- Hatch - in progress

ERIP Change Goal

Desired Outcome:

Lay a solid foundation on which to build a living long-term maintenance strategy where our **processes** and **people** are preventing equipment failures.

ERIP Scope of Work

Phase 1

Scoping and Identification of Critical Components

Phase 2

Preventive Maintenance Implementation and Feedback Improvement

Phase 3

Preventive Maintenance Basis and Maintenance Optimization

Phase 4

Performance Monitoring and Prioritization Improvement

ERIP – From ‘Project’ to ‘Process’

- Active Craft Feedback and Ownership
- Proactive Engineering
- High Level of Equipment Reliability
- Optimizing Availability of SSC’s.
- Optimizing Maintenance Effectiveness.
- Reduced Generation Lost
- Reduced Operation and Maintenance Cost

Questions?

Conclusions

Steve Byrne