



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
611 RYAN PLAZA DRIVE, SUITE 400
ARLINGTON, TEXAS 76011-4005

July 31, 2003

James J. Sheppard, President and
Chief Executive Officer
STP Nuclear Operating Company
P.O. Box 289
Wadsworth, Texas 77483

SUBJECT: SOUTH TEXAS PROJECT ELECTRIC GENERATING STATION, UNIT 1 -
SUMMARY OF EXIT MEETING FOR SPECIAL INSPECTION OF BOTTOM
MOUNTED INSTRUMENTATION NOZZLE LEAKAGE IN SOUTH TEXAS
PROJECT, UNIT 1 (NRC INSPECTION REPORT 05000498/2003008)

Dear Mr. Sheppard:

This refers to the public exit meeting conducted at the Civic Center in Bay City, Texas, on July 28, 2003, between your staff and the NRC. The participants discussed the results of the special inspection conducted between May 5 and July 28, 2003. The final inspection results will be available in NRC Inspection Report 05000498/2003008 within 30 days. Additionally, your staff presented the status of your root cause assessment, repairs made, readiness for restart of Unit 1, and plans for future condition monitoring in both units.

The list of attendees is enclosed with this summary (Enclosure 1). Copies of the NRC presentation slides and your staff's presentation slides are also enclosed (Enclosures 2 and 3).

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be made available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room).

Sincerely,

/RA/

Anthony T. Gody, Acting Director
Division of Reactor Safety

Docket: 50-498;
License: NPF-76

Enclosures:

1. Attendance List

STP Nuclear Operating Company

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2. NRC Presentation
3. Licensee Presentation

cc w/enclosures:

Tom Jordan, Vice President
Engineering & Technical Services
STP Nuclear Operating Company
P.O. Box 289
Wadsworth, Texas 77483

S. M. Head, Manager, Licensing
Nuclear Quality & Licensing Department
STP Nuclear Operating Company
P.O. Box 289, Mail Code: N5014
Wadsworth, Texas 77483

A. Ramirez/C. M. Canady
City of Austin
Electric Utility Department
721 Barton Springs Road
Austin, Texas 78704

L. D. Blaylock/W. C. Gunst
City Public Service Board
P.O. Box 1771
San Antonio, Texas 78296

D. G. Tees/R. L. Balcom
Houston Lighting & Power Company
P.O. Box 1700
Houston, Texas 77251

Jon C. Wood
Matthews & Branscomb
112 E. Pecan, Suite 1100
San Antonio, Texas 78205

A. H. Gutterman, Esq.
Morgan, Lewis & Bockius
1111 Pennsylvania Avenue NW
Washington, DC 20004

C. A. Johnson/A. C. Bakken
AEP Texas Central Company
P.O. Box 289, Mail Code: N5022
Wadsworth, Texas 77483

INPO

Records Center
700 Galleria Parkway
Atlanta, Georgia 30339-5957

Director, Division of Compliance
& Inspection
Bureau of Radiation Control
Texas Department of Health
1100 West 49th Street
Austin, Texas 78756

Brian Almon
Public Utility Commission
William B. Travis Building
P.O. Box 13326
1701 North Congress Avenue
Austin, Texas 78701-3326

Environmental and Natural
Resources Policy Director
P.O. Box 12428
Austin, Texas 78711-3189

Judge, Matagorda County
Matagorda County Courthouse
1700 Seventh Street
Bay City, Texas 77414

Terry Parks, Chief Inspector
Texas Department of Licensing
and Regulation
Boiler Program
P.O. Box 12157
Austin, Texas 78711

Susan M. Jablonski
Office of Permitting, Remediation and Registration
Texas Commission on Environmental Quality
MC-122, P.O. Box 13087
Austin, Texas 78711-3087

Ted Enos
4200 South Hulen
Suite 630
Fort Worth, Texas 76109

Electronic distribution by RIV:
 Acting Regional Administrator **(TPG)**
 DRP Director **(ATH)**
 Acting DRS Director **(ATG)**
 Senior Resident Inspector **(GLG)**
 Branch Chief, DRP/A **(WDJ)**
 Senior Project Engineer, DRP/A **(TRF)**
 Staff Chief, DRP/TSS **(PHH)**
 RITS Coordinator **(NBH)**
 Mel Fields **(MBF1)**
 STP Site Secretary **(LAR)**

ADAMS: G **Yes** G No Initials: _____
 G **Publicly Available** G Non-Publicly Available G Sensitive G **Non-Sensitive**

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| RIV:EMB | SRA/TL | D:DRS | | |
| NFO'Keefe | RLBywater | ATGody | | |
| /RA/ | /RA/ | /RA/ | | |
| 07/30/03 | 07/31/03 | 07/31/03 | | |

OFFICIAL RECORD COPY

T=Telephone

E=E-mail

F=Fax

ENCLOSURE 1

MEETING ATTENDANCE LIST

Attendance Sheet

NRC Public Exit Meeting Special Inspection for Bottom Mounted Instrument Tube Leaks July 28, 2003

| Name: | Organization: | Name: | Organization: |
|-------------------|---------------|----------------------|---------------------|
| 1. Wayne S. Fran | US NRC | 15. E. Linnaway | STPNOC |
| 2. Wayne Hamson | STPNOC | 16. DAVID REARDON | STPNOC |
| 3. Steve Thomas | STPNOC | 17. Bill Dunst | City Public Service |
| 4. Chris Anderson | Express-News | 18. Larry Blaybell | City Public Service |
| 5. Matt Daryl | Reuters | 19. K. Lutz | MCQ STP |
| 6. Peter Strubhan | Framatome ANP | 20. David H. Tux | STPNOC |
| 7. Frank Mullen | STPNOC | 21. George Meyer | Washington |
| 8. Basel Djaqmati | Framatome ANP | 22. GARY MIBLOGNA | FRAMATOME ANP |
| 9. Ron Dorman | Framatome ANP | 23. John Conly | STPNOC |
| 10. BOB BRIST | FRAMATOME ANP | 24. LURINDA BRARON | STP |
| 11. Rob Smith | Framatome ANP | 25. BOB WATTS | MATAGORDA County |
| 12. Doug Killian | Framatome ANP | 26. Jerry Grooms | " " ED |
| 13. Robert Cole | FRAMATOME ANP | 27. Mary B. Johnston | Public Relations |
| 14. Harry Murray | STPNOC | 28. | |

| | | | |
|-----------------|------------------|--------------------|----------|
| Michael Doshley | STPNOC | Chas. M. [unclear] | city |
| James Heil | STPNOC | Dianne Kline | in panel |
| R. WAYNE FRIEDA | MCSD | Russell Lowell | STPNOC |
| HARRY SHANNON | Port of Bay City | | |
| ANUP KHOSLA | STPNOC | | |
| W. WOOD | TRIBUNE | | |
| R. SILVERTHORNE | STPNOC | | |
| M. Baker | The Facts | | |

ENCLOSURE 2

NRC PRESENTATION SLIDES

U.S. NUCLEAR REGULATORY COMMISSION

Special Inspection Team Exit Meeting

Bottom Mounted Instrumentation Leakage Issue

South Texas Project Unit 1

July 28, 2003

Agenda

P Purpose of Meeting and Introductory Remarks

P Introduction of NRC Personnel

P Introduction of STPNOC Personnel

P STPNOC Presentation

P NRC Exit Presentation

P Concluding Remarks

P Public Comment

NRC Special Inspection Team

Chartered to Review STP Unit 1 BMI Leakage Issue

P Russ Bywater, Senior Reactor Analyst, Region IV, Team Leader

P Neil O'keefe, Senior Reactor Inspector, Region IV

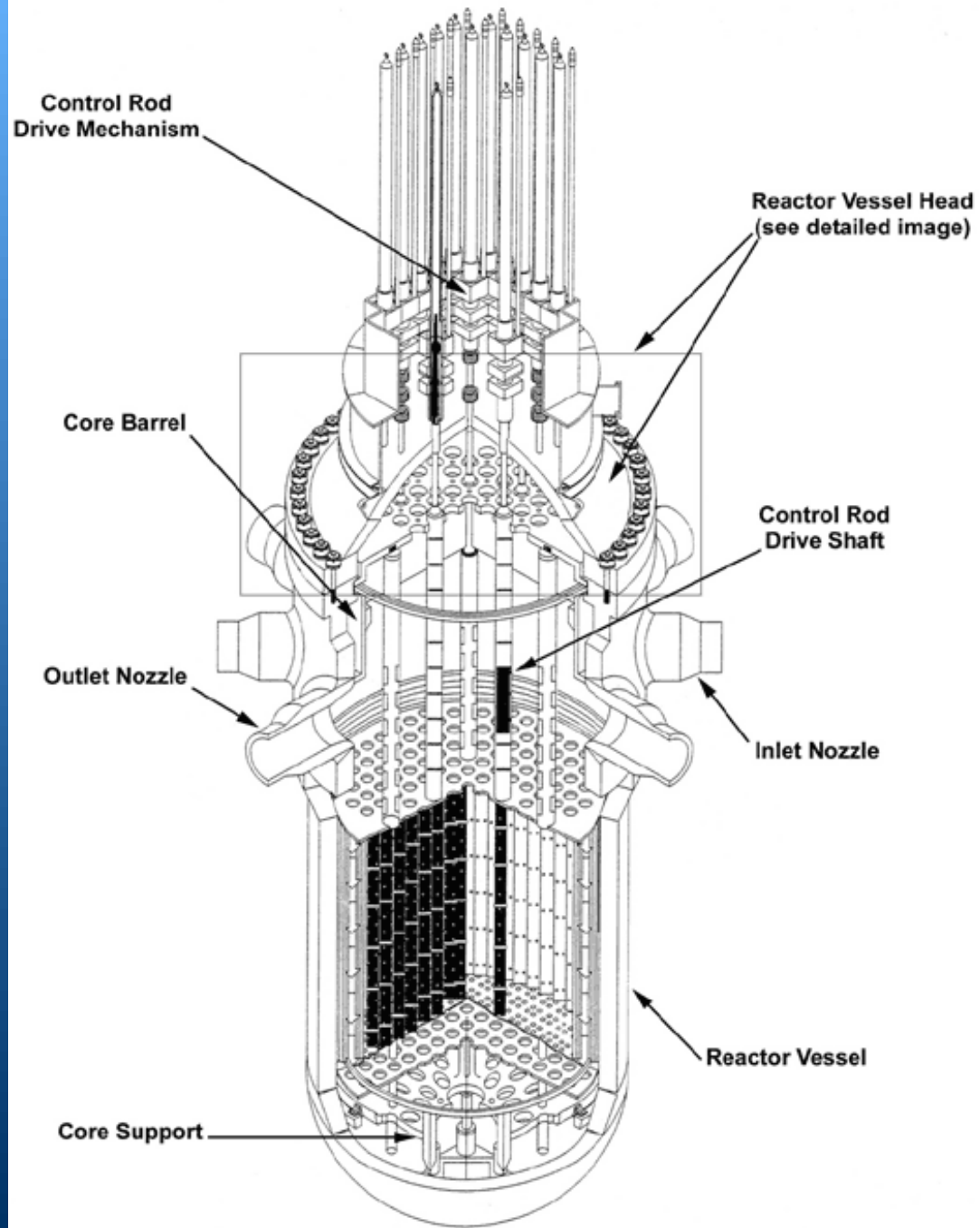
P Wayne Sifre, Reactor Inspector, Region IV

P Matthew Mitchell, Senior Materials Engineer, NRR

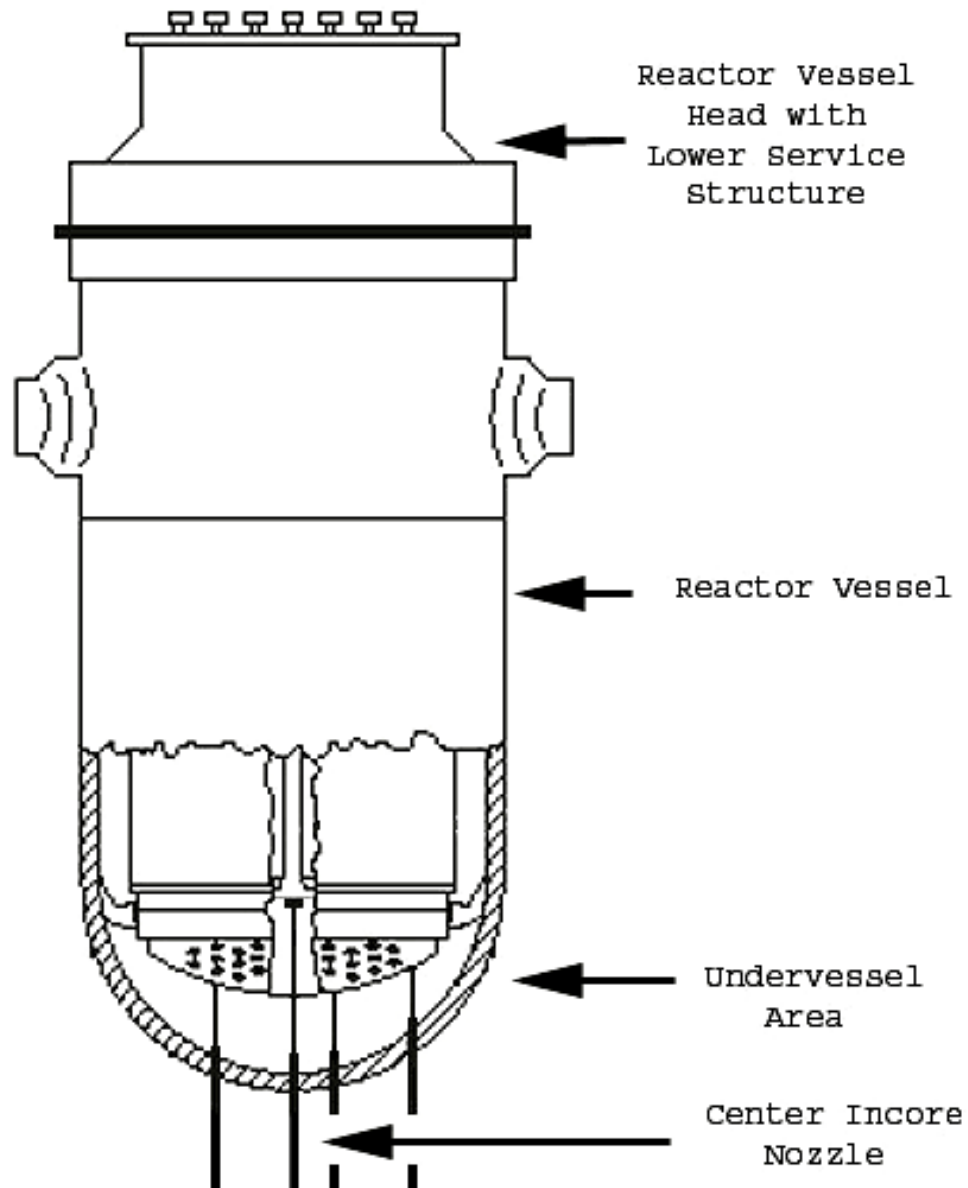
P Mike Runyan, Senior Reactor Analyst, Region IV

P Dr. Steve Doctor, Pacific Northwest National Laboratory

Typical Pressurized Water Reactor



Typical Babcock and Wilcox Reactor Vessel



Description of Issue and Chronology

P NRC Generic Letter 88-05

P NRC Bulletin 2001-01

P NRC Bulletin 2002-01

P STP Identification of BMI Leakage

Adequacy of Corrective Actions

P Examination Campaign

P Development and Implementation of Repairs

P Examination of Removed Samples

P Evaluation of Potential Root Causes

P Implementation of Continued Monitoring Program

Safety Significance of Issue

P Regulatory Requirements

P Assumptions Used in Analysis

P Preliminary Significance Determination

Acceptability of STP-1 Operation

P Examination Results

P BMI Nozzle Repair

P Continued Monitoring Program

Concluding Remarks

P STPNOC Response

P Public Comments

P NRC Concluding Comments

P For More Information:

www.nrc.gov/reactors/operating/ops-experience/bottom-head-penetration-leakage.html

ENCLOSURE 3

STP PRESENTATION SLIDES

South Texas Project Unit 1



**Bottom Mounted Instrument Penetration
Condition Resolution**

7/28/03

STP Participants

Joe Sheppard

President & CEO

Tom Jordan

VP, Engineering & Tech
Services

Gary Parkey

VP, Generation

Ed Halpin

Plant General Manager



7/28/03



STP Used Worldwide Experts



External Support

Framatome ANP

Westinghouse - PCI

Dominion Engineering

Performance Improvement International

Exponent Failure Analysis Associates

V. C. Summer Nuclear Power Plant

Comanche Peak Steam Electric Station

Arkansas Nuclear One Power Plant

Japanese loanee to Institute of Nuclear Power Operations (INPO)

Electric Power Research Institute (EPRI)

Electricite de France

Tractabel (Belgium)

Harfang Industries

Altran

Full-Sized Mock-up at STP



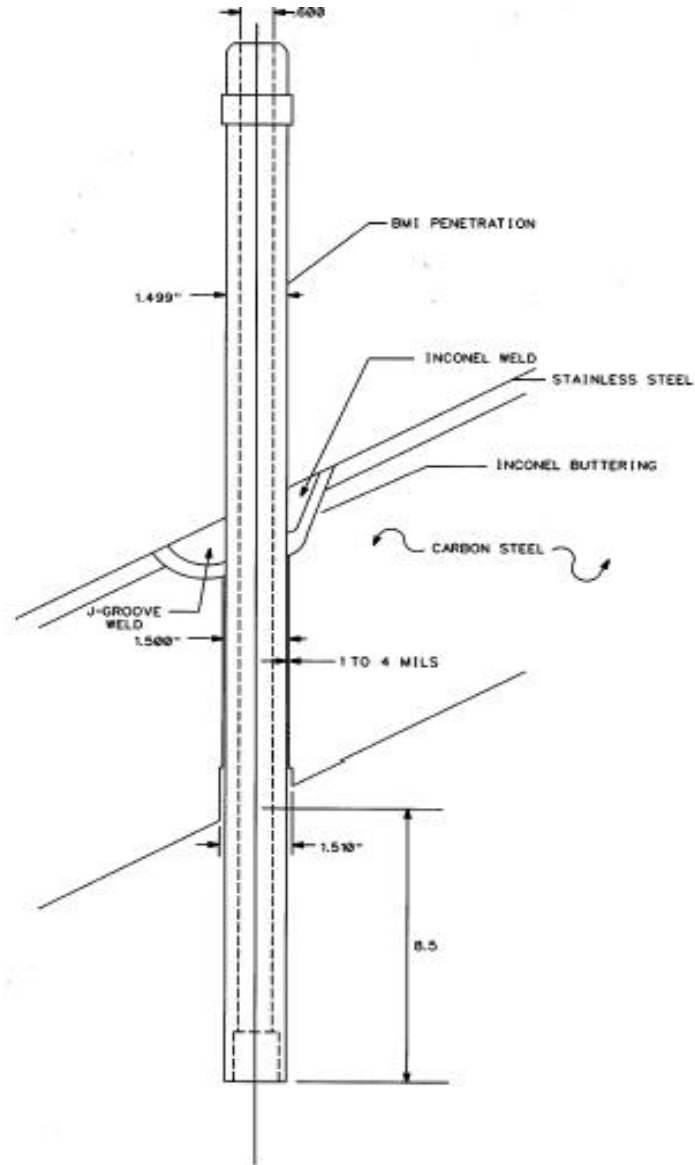
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EXTENT of CONDITION, CAUSE, CORRECTIVE ACTION

**Tom Jordan
Vice President,
Engineering & Technical Services**

BMI Guide Tube Penetration



Our Inspection Process Works

We inspect the exterior of our vessels every time we shutdown for a refueling outage. Previous inspections did not reveal indications of seepage.



Evidence of Very Small Leakage Found in Routine Inspection



7/28/03

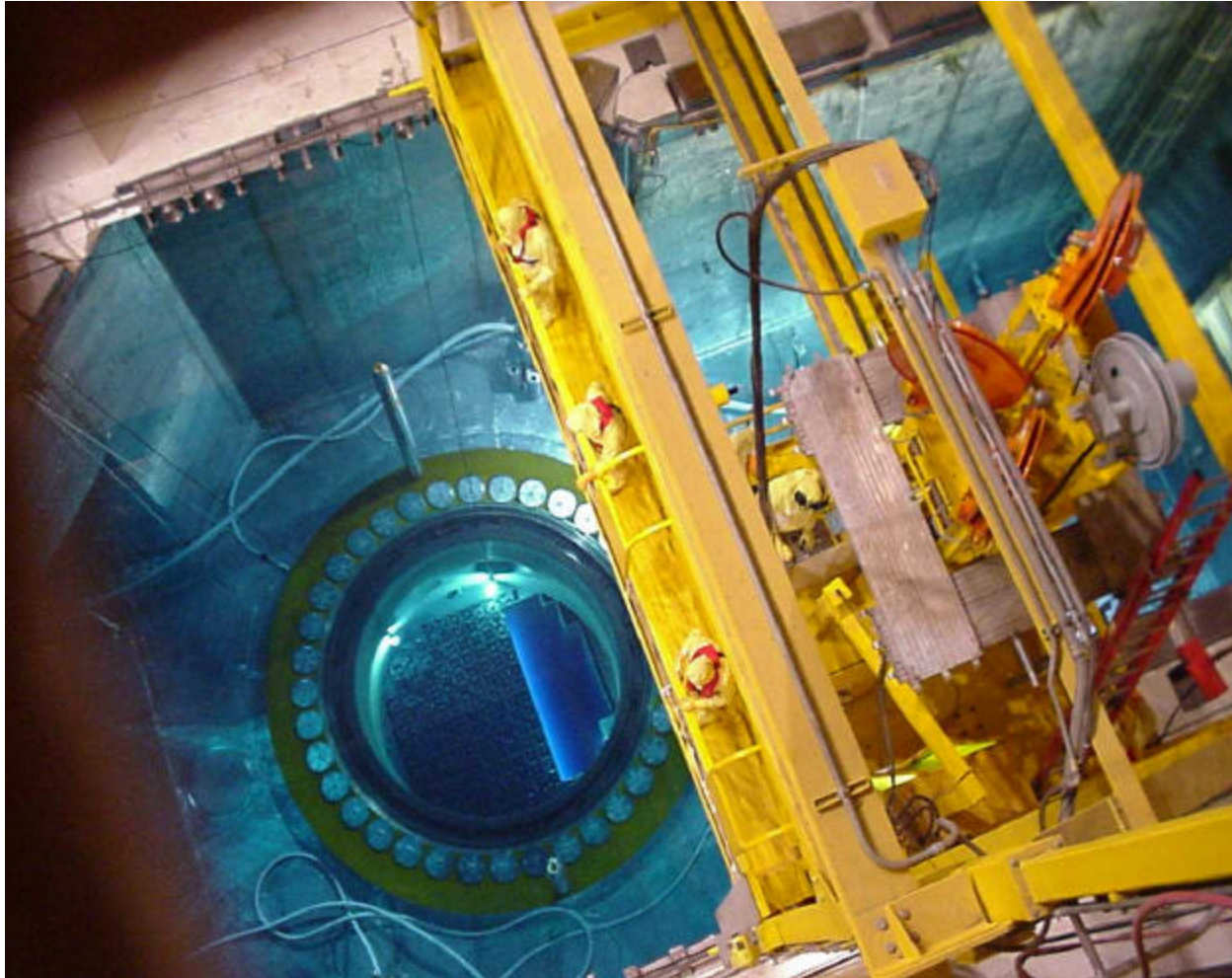


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Actual Amount of Residue



Looking Down into Reactor Cavity

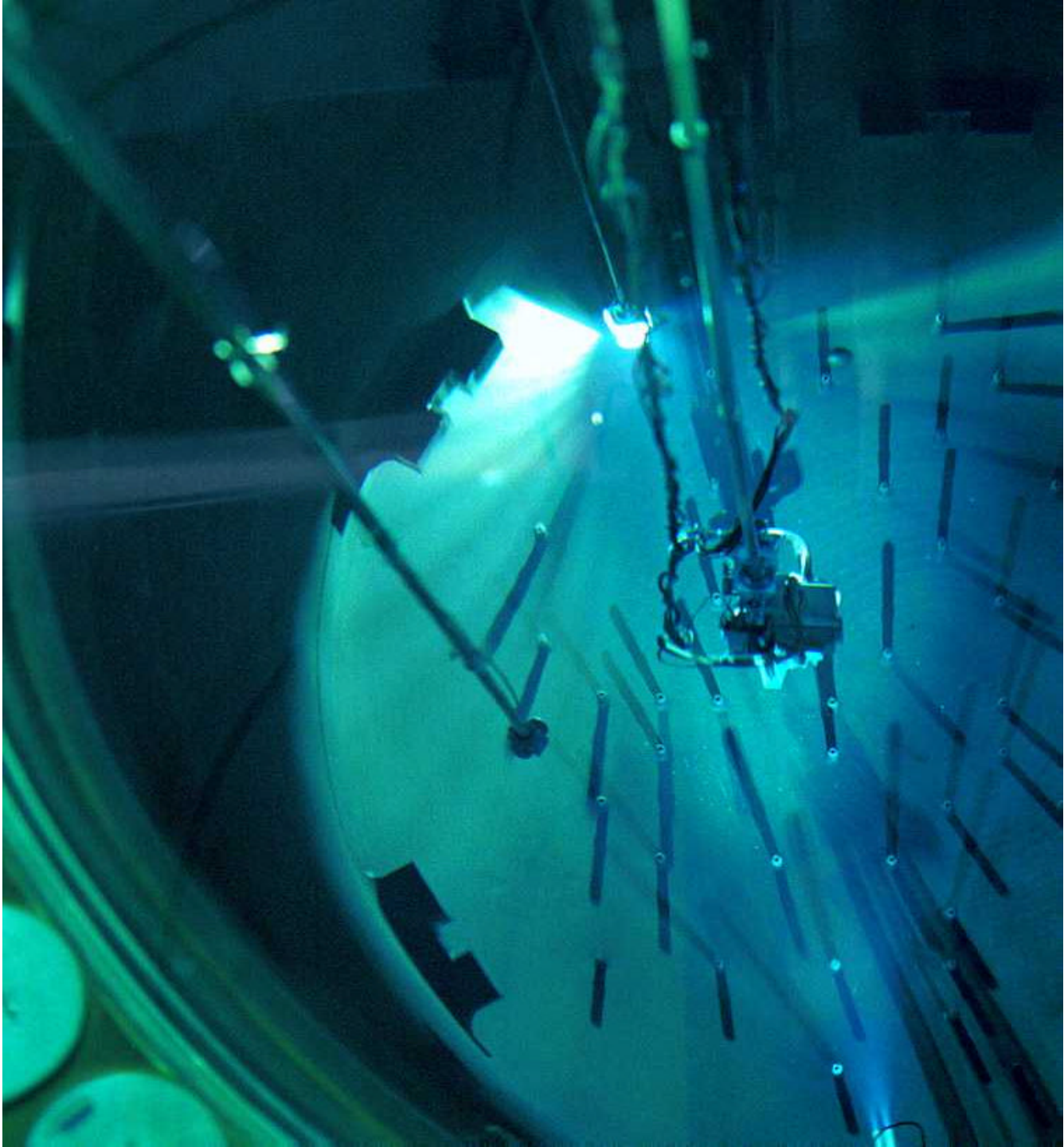


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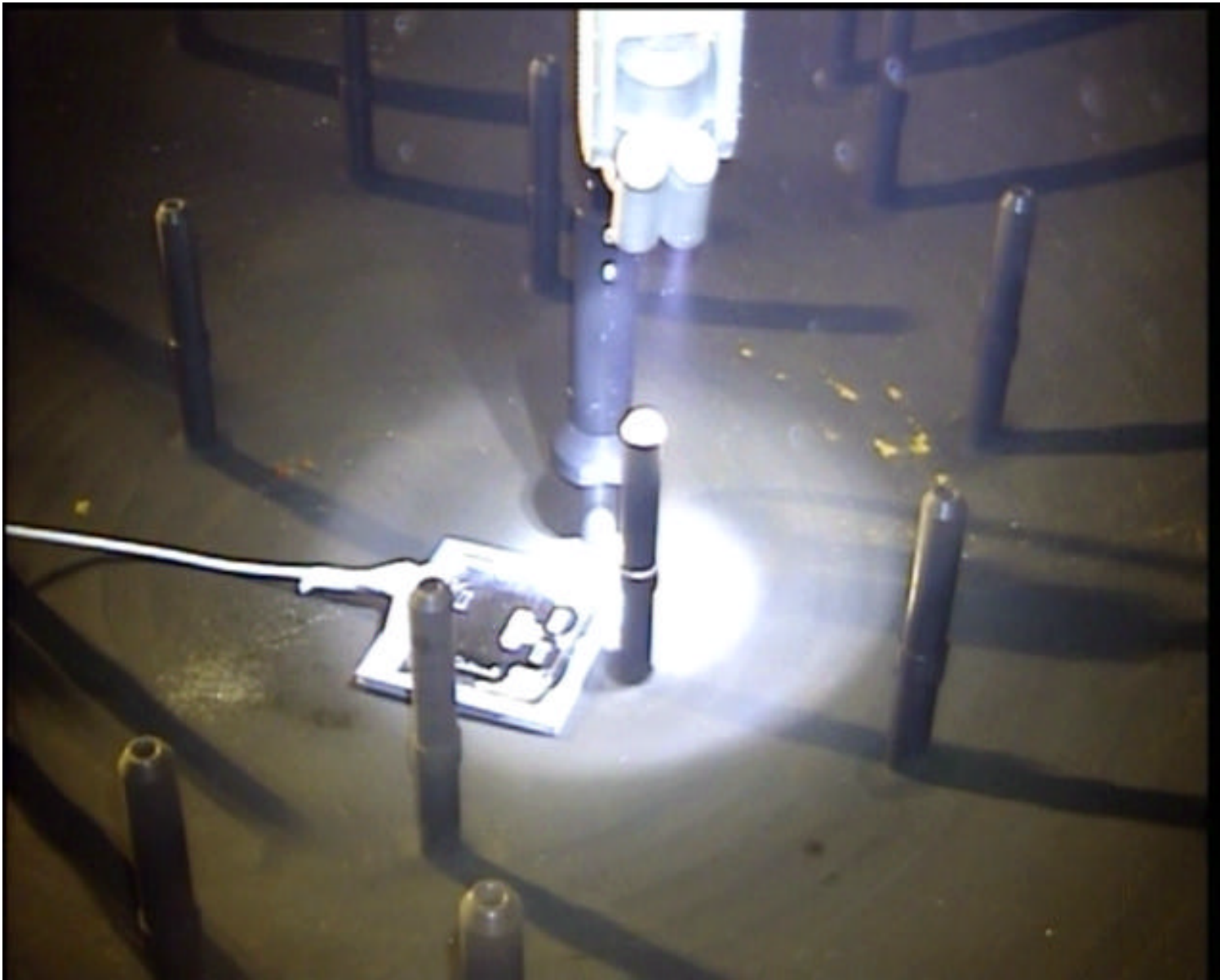
Extensive NDE Using State-of-the-Art Techniques and the Most Experienced People in the World





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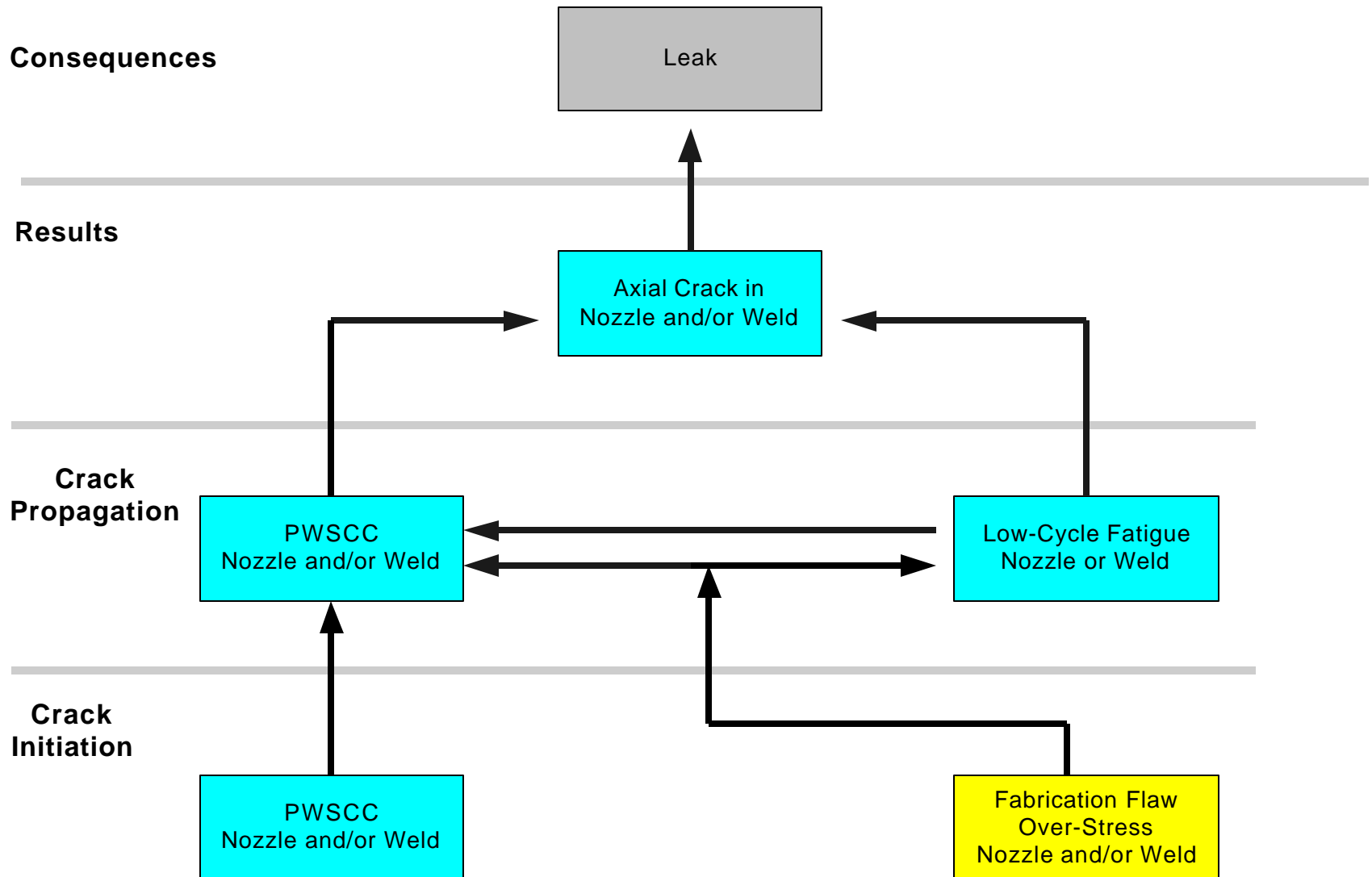
Examination Scope

- Ultrasonic examination (UT) from penetration tube ID
- Enhanced visual exam of J-groove weld surface
- Volumetrically interrogate vessel base metal for wastage
- Eddy current examination (ET) from penetration tube ID
- ET of J-groove weld surface
- Profilometry [tube inside roundness / ovality]
- Borescope [tube inside visual] examinations
- Helium tests
- Metallurgical analyses of removed nozzle remnants
- Boat sample analyses

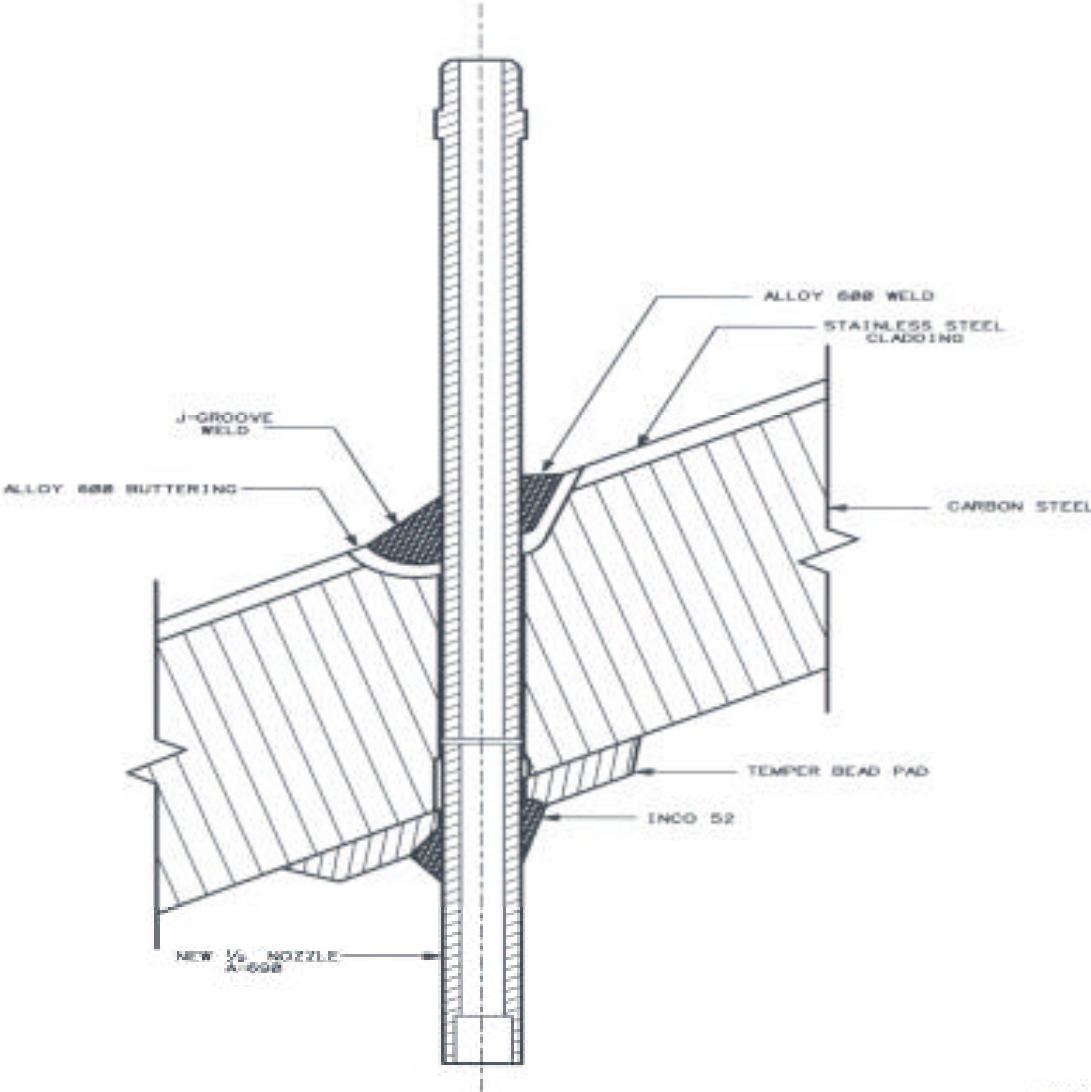
Examination Results

- Penetration #1
 - Three axial indications, one leak path
- Penetration #46
 - Two axial indications, one leak path

Investigation Results



Permanent Half-Nozzle Repair



Completed Repair



Condition Limited to the Two Identified Nozzles

- Routine inspection identified very low leakage
- Extensive NDE confirmed condition limited to two penetrations
 - Axial cracks in tubes
 - No wastage
- Substantial safety margin existed
- Repairs are complete
- Monitoring / inspection plan developed

**MONITORING / INSPECTION
PLAN and
RETURN to SERVICE**

**Ed Halpin
Plant General Manager**

Monitoring / Inspection Plan Confirms Effective Corrective Action

- Continue bare metal visual inspections under boric acid control program
- Perform UT and EVT of penetrations at next Unit 1 vessel inservice inspection
- Perform periodic UT of vessel base material around repaired penetrations
- Perform volumetric examination of Unit 2 penetrations at next refueling outage with core barrel removal
- Online monitoring plan developed

Outage Philosophy

Three-phase outage approach for long-term focus on nuclear safety and reliability

- Phase One: Discovery
- Phase Two: Repair
- Phase Three: Return to Service

Return to Service

- Plant readiness
 - Comprehensive communications plan
 - PORC reviewed selected activities
 - Just-in-time training for plant operators
 - Weekly plant walkdowns with key station management to assess readiness
 - Increase in staff and manning onshift
 - Specific readiness reviews including
 - Integrated schedule review
 - Refuel project readiness review
 - Secondary plant startup review

Return to Service (cont'd)

