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


04/12/2003


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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

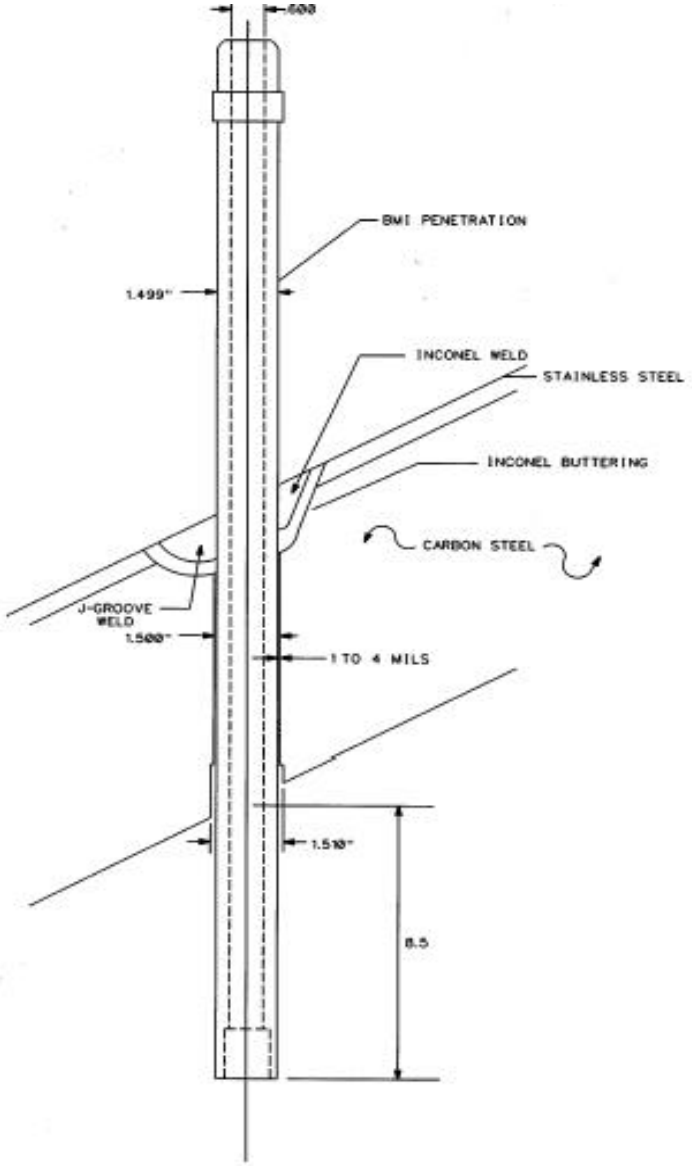
Altran

Full-Sized Mock-up at STP

EXTENT of CONDITION, CAUSE, CORRECTIVE ACTION

Tom Jordan
Vice President,
Engineering & Technical Services

BMI Guide Tube Penetration



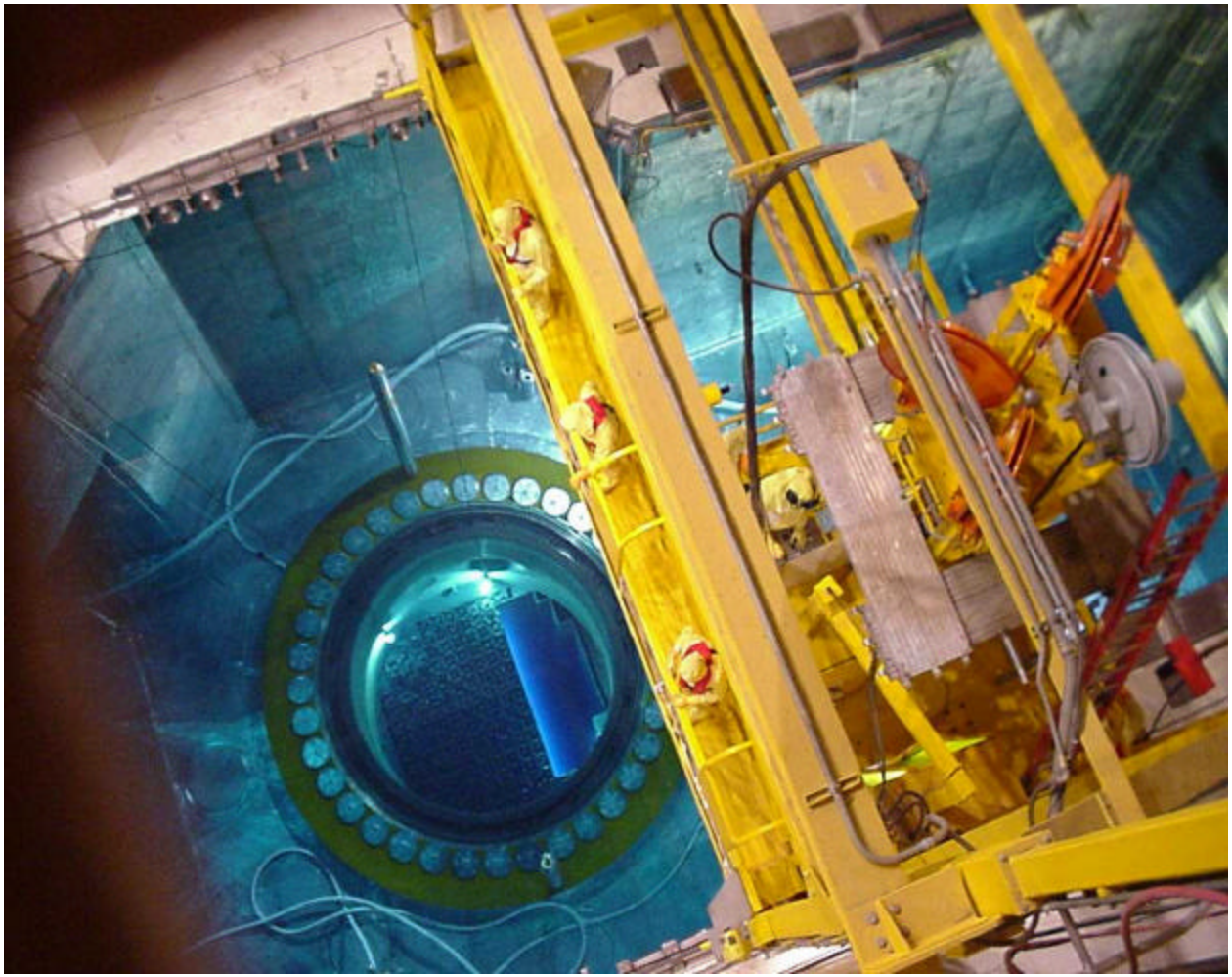
Our Inspection Process Works

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

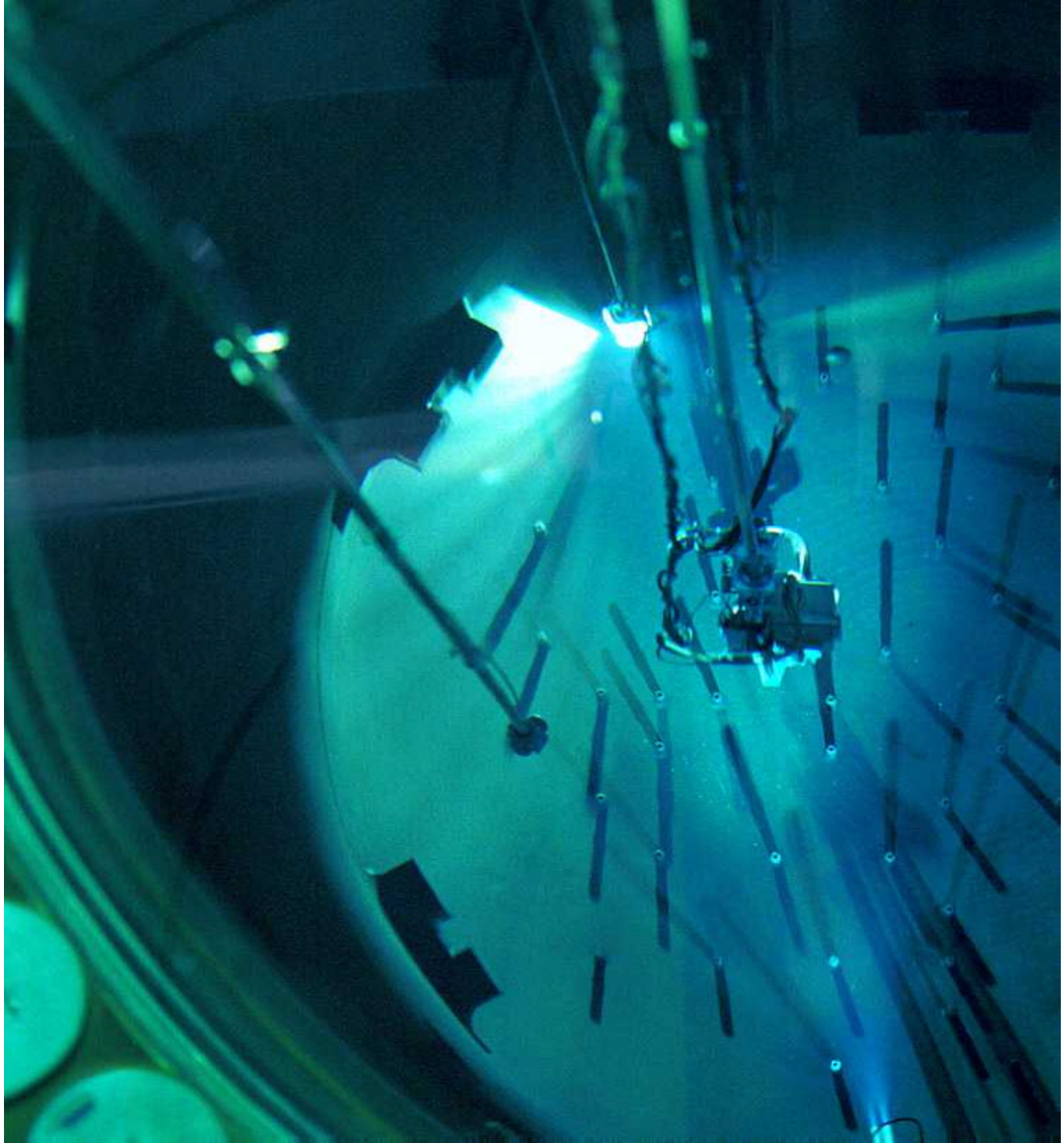
Evidence of Very Small Leakage Found in Routine Inspection

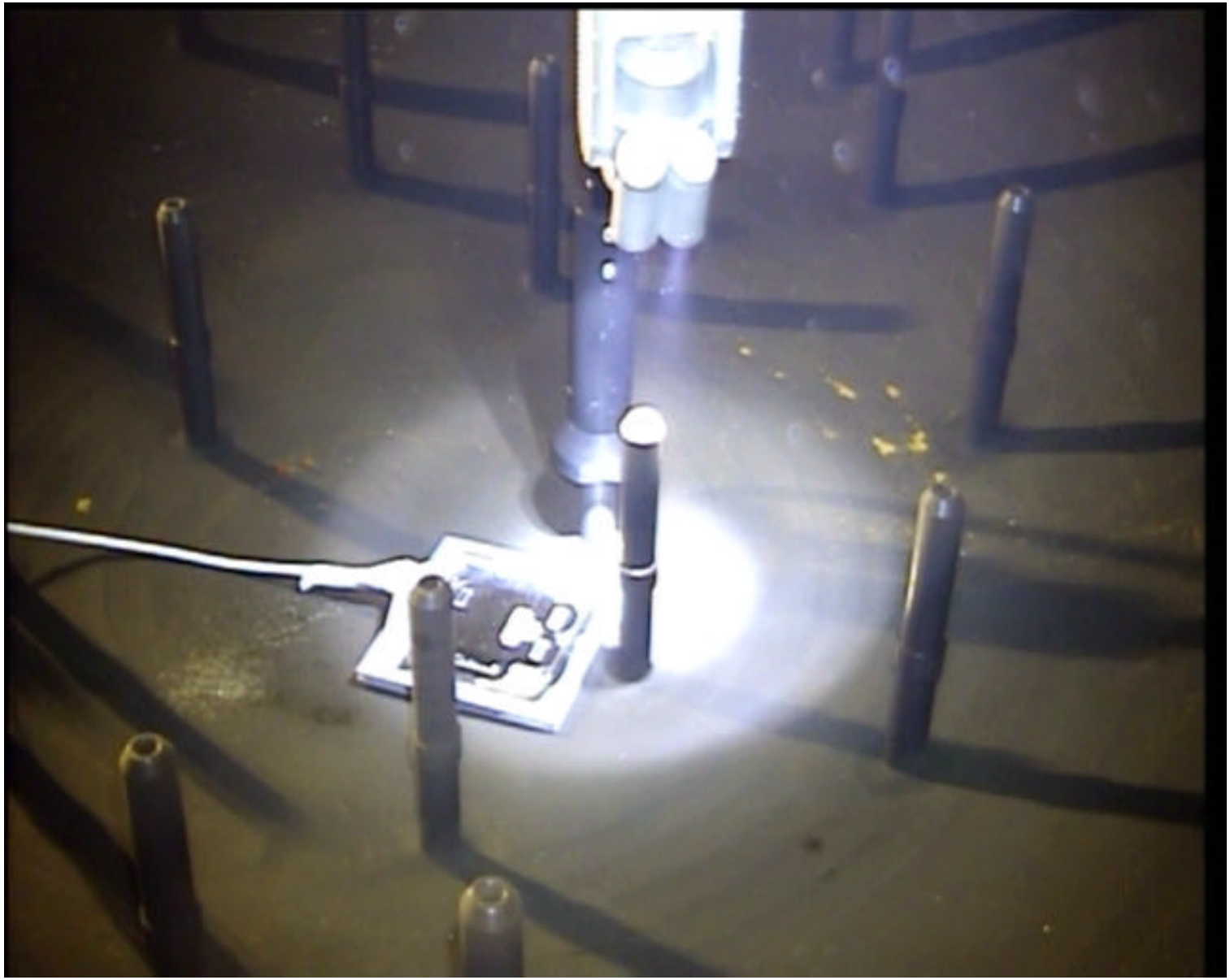
Actual Amount of Residue

Looking Down into Reactor Cavity



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





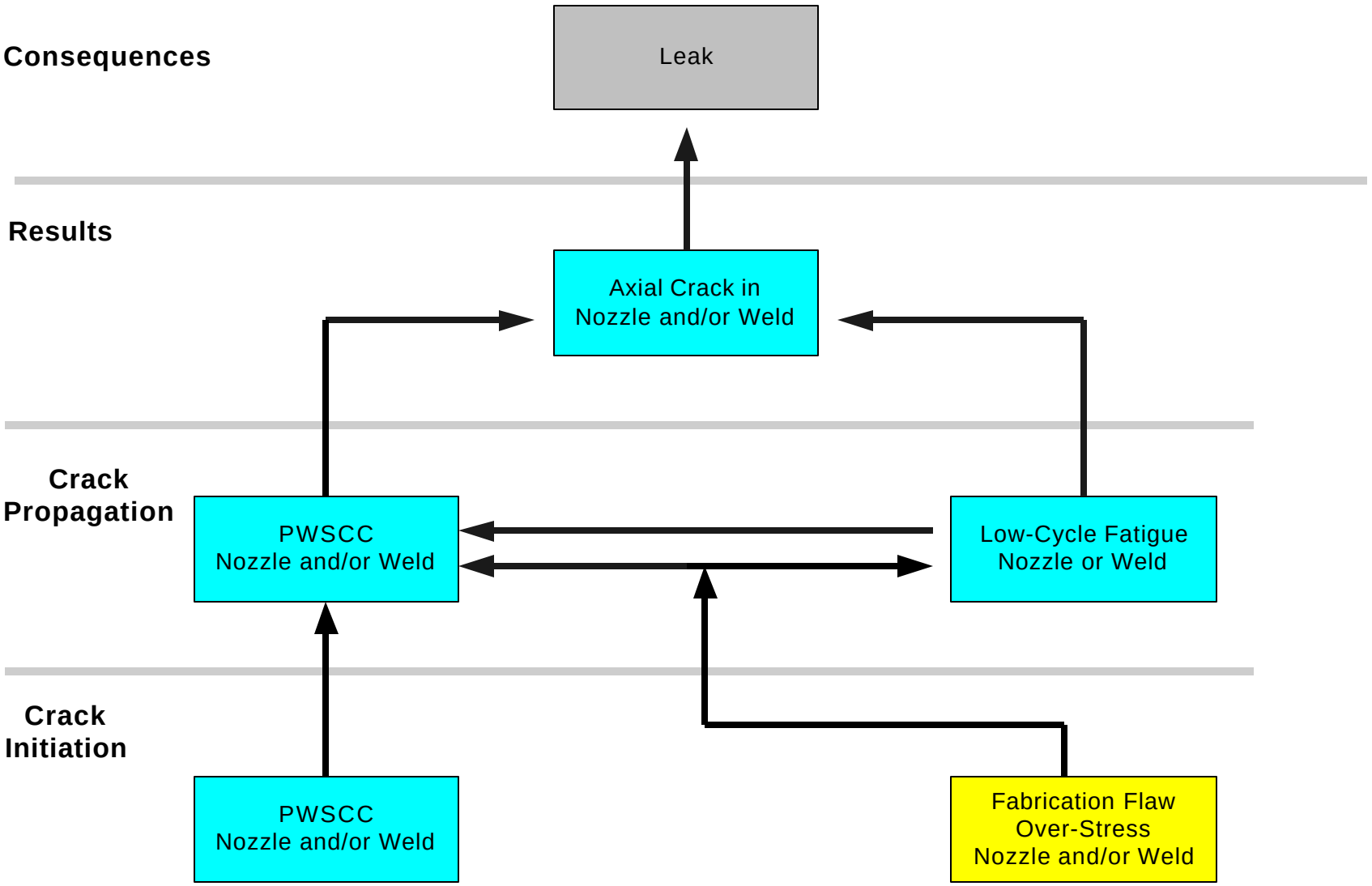
Examination Scope

- 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

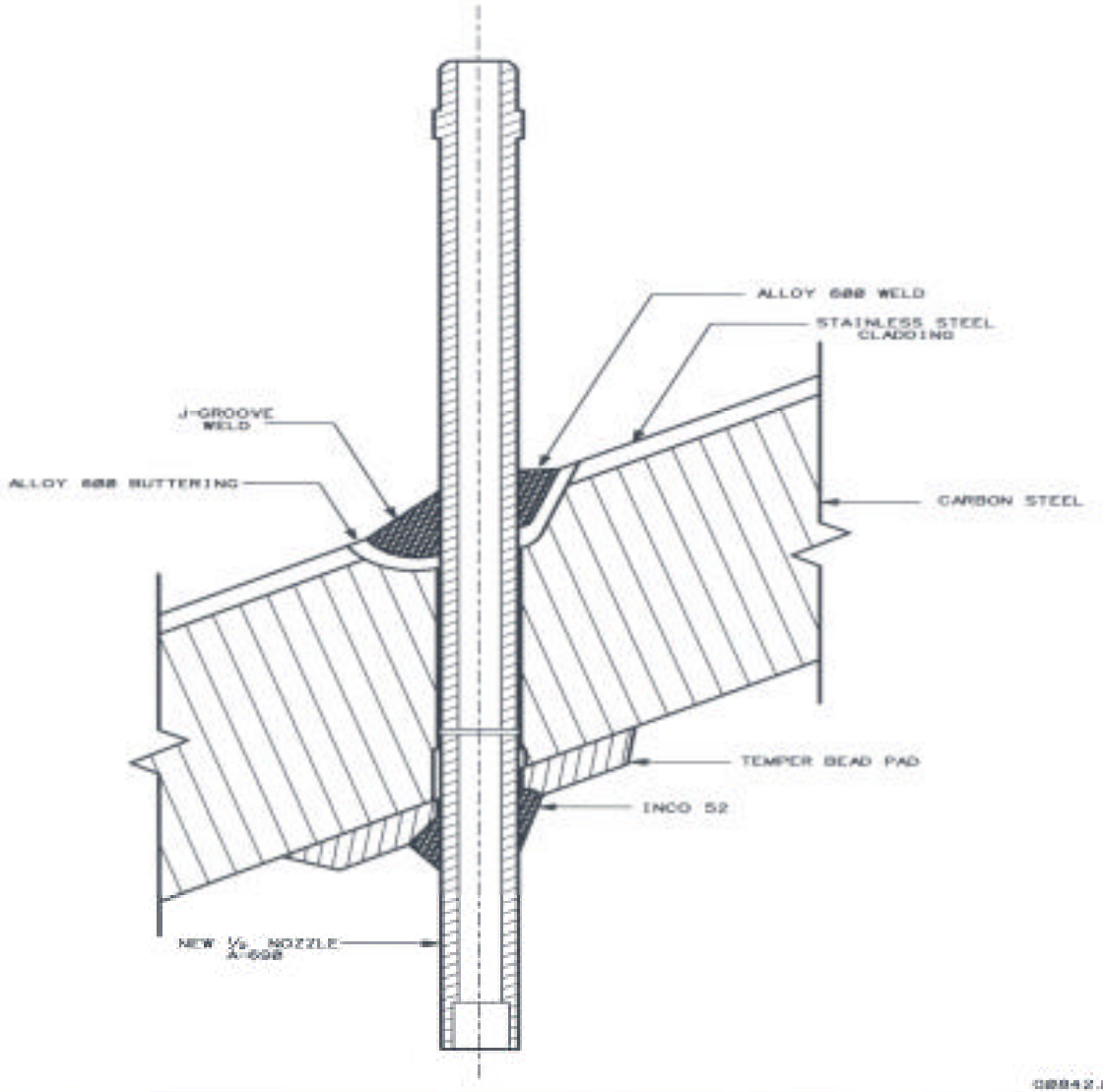
Examination Results

- 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)