

# EPRI Long-Term Operations: R&D for Aging Management

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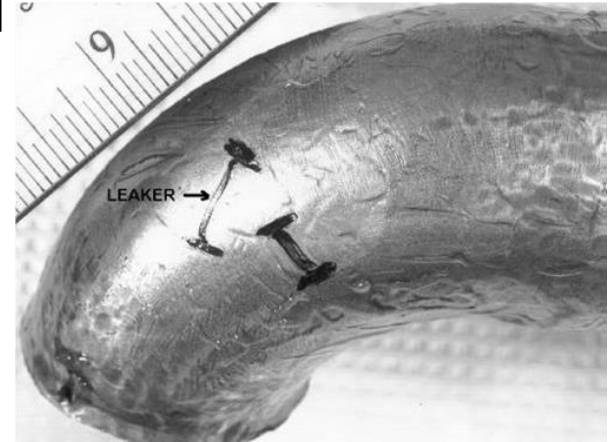
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# Technical Basis for Robust Aging Management

- Mechanistic understanding of aging degradation
- Inspection technologies
- Evaluation and assessment
- Mitigation strategies
- Condition monitoring
- Remaining useful life assessments
- Repair & replacement decisions



# Prioritization of R&D

## Aging Impacts:

- Increased thermal exposure
- Increased radiation exposure
- Stress corrosion cracking
- Fatigue usage

## High Priority:

- Primary system metals, welds and piping
- Reactor pressure vessel
- Electrical cables
- Concrete and containment structures

# Management of Materials Aging

- Industry Initiative NEI 03-08
  - Requirements for inspection, evaluation and repairs
  - Documentation and reporting of inspection findings
  - Sharing of operating experience
  - Program assessment through INPO
  - Routine updates provided to NRC
- EPRI Materials Degradation Matrix (MDM) & Issue Management Tables (IMTs)

# Materials Action Plan Committee (MAPC) Programs

- BWR Vessel and Internals Program
- PWR Materials Reliability Program
- Steam Generator Management Program
- Primary System Corrosion Research
- Water Chemistry
- Nondestructive Examination Program
- PWR Owner's Group Materials

# EPRI R&D for RCS Metals

- Primary metals, welds and piping
  - Managed by EPRI Materials Action Plan Committee and the Issue Programs
  - Technical publications
  - Technical presentations
- Reactor pressure vessel
  - Surveillance capsule programs
  - Embrittlement Trend Correlations

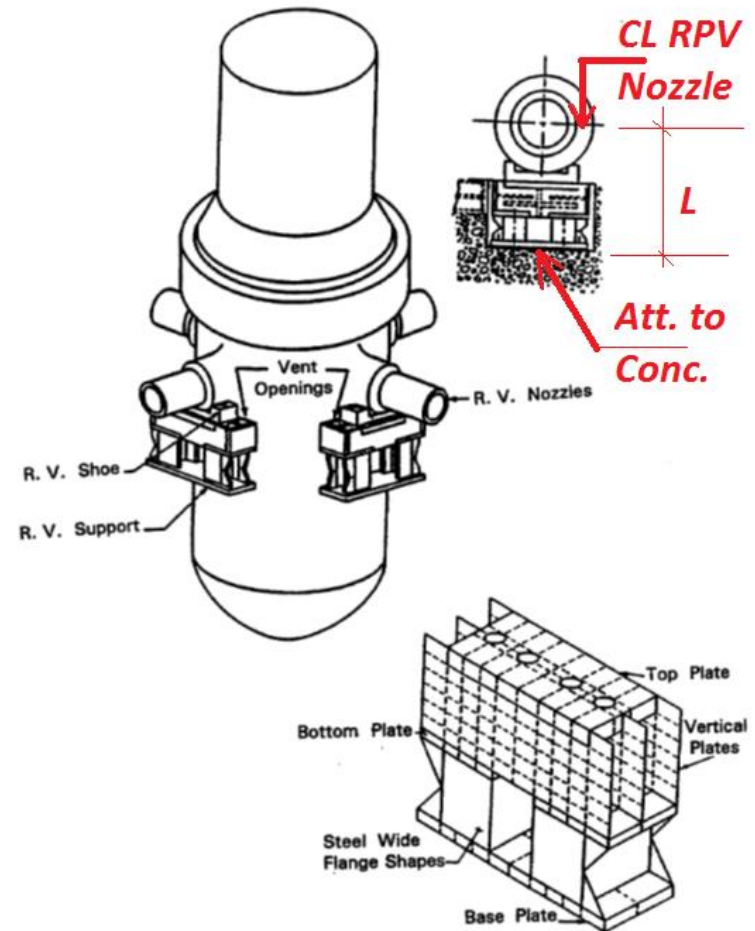
# EPRI R&D for Cables

- Extensive R&D on electrical cables
- License Renewal Handbook
- Aging Management Guidelines
- EPRI Cables Users Group



# EPRI R&D for Concrete

- Radiation impacts
- Model of boric acid interactions
- Alkali silica reactions
- Non-destructive examination (NDE)





# Summary

- Technical basis is established and in use for aging management
- Continuous improvements based on research results, inspections and operating experience

