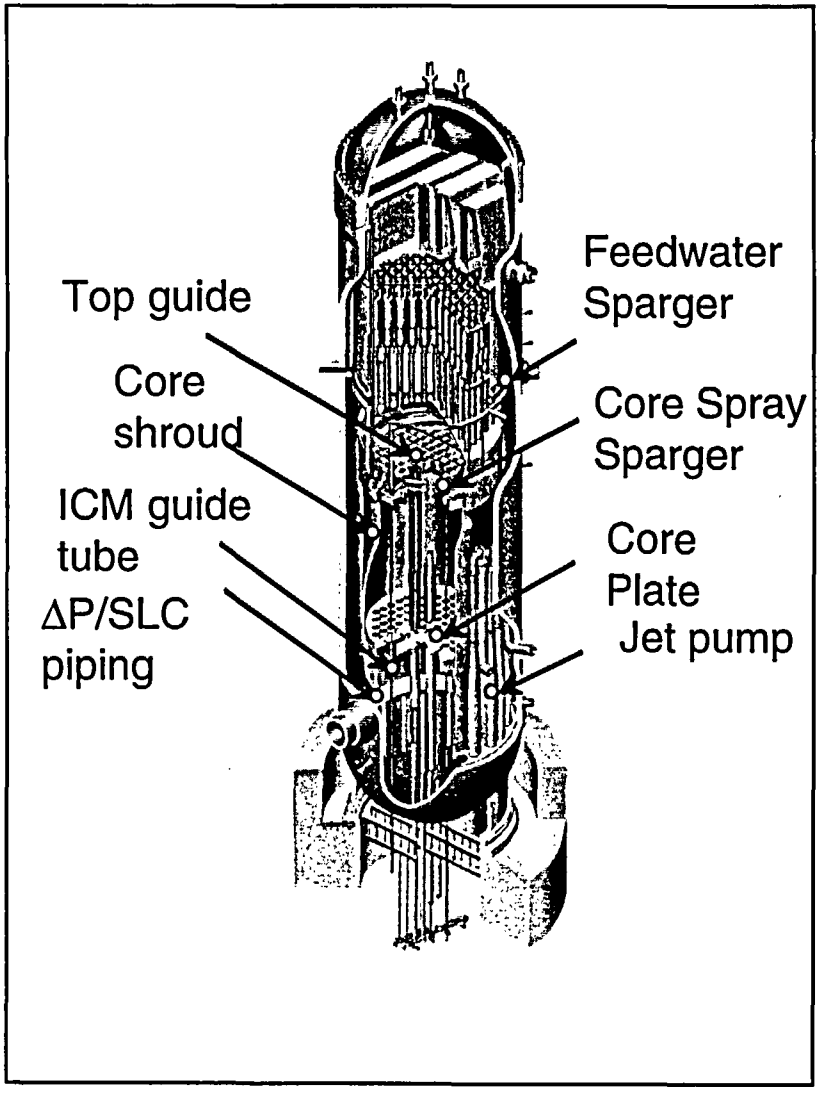

Status of BWR Vessel and Internals Project (BWRVIP) Activities

BWRVIP Executive Oversight Committee Meeting with NRC Management

November 5, 2003

Bill Eaton, BWRVIP Vice Chairman
Entergy

BWRVIP


An international program for
managing BWR vessel and internals
material condition issues

BWRVIP Member Utilities

U. S. (13 utilities, 34 units)

- **Constellation Nuclear, Nine Mile Point LLC**
- **DTE Energy**
- **Energy Northwest**
- **Entergy**
- **Exelon**
- **FirstEnergy**
- **Nebraska Public Power District**
- **Nuclear Management Co.**
- **PPL Susquehanna, LLC**
- **Progress Energy**
- **PSEG Nuclear**
- **Southern Nuclear Company**
- **Tennessee Valley Authority**

International (12 utilities, 44 units)

- **BKW FMB Energie AG – Switzerland**
- **Chubu Electric Power Company - Japan**
- **Chugoku Electric Power Company - Japan**
- **Comision Federal de Electricidad - Mexico**
- **Forsmarks Kraftgrupp AB - Sweden**
- **Iberdrola Generation - Spain**
- **Japan Atomic Power Company – Japan**
- **Kernkraftwerk Leibstadt – Switzerland**
- **OKG Aktiebolag - Sweden**
- **Taiwan Power Company - Taiwan**
- **Tohoku Electric Power Company - Japan**
- **Tokyo Electric Power Company - Japan**

BWRVIP Reports Transmitted to the NRC in 2003

- "TR105696-R5 (BWRVIP-03) Revision 5: BWR Vessel and Internals Project, Reactor Pressure Vessel and Internals Examination Guidelines," EPRI Technical Report 1003554, December 2002.
- "BWRVIP-60-A: BWR Vessel and Internals Project, Evaluation of Stress Corrosion Crack Growth in Low Alloy Steel Vessel Materials in the BWR Environment," EPRI Technical Report 1008871, June 2003.
- "BWRVIP-74-A: BWR Vessel and Internals Project, BWR Reactor Pressure Vessel Inspection and Flaw Evaluation Guidelines for License Renewal," EPRI Technical Report 1008872, June 2003.

5. "BWRVIP-113: BWR Vessel and Internals Project, River Bend 183 Degree Surveillance Capsule Report," EPRI Technical Report 1003345 June 2003.
6. "BWRVIP-114: BWR Vessel and Internals Project, RAMA Fluence Methodology Theory Manual," EPRI Technical Report 1003660, June 2003.

BWRVIP Reports Transmitted to the NRC in 2003(concluded)

7. "BWRVIP-115: BWR Vessel and Internals Project, RAMA Fluence Methodology Benchmark Manual – Evaluation of Regulatory Guide 1.190 Benchmark Problems," EPRI Technical Report 8063, June 2003.
8. "BWRVIP-116: BWR Vessel and Internals Project, Integrated Surveillance Program (ISP) Implementation for License Renewal," EPRI Technical Report 1007824, July 2003.
9. "BWRVIP-117: BWR Vessel and Internals Project, RAMA Fluence Methodology Plant Application – Susquehanna Unit 2 Surveillance Capsule Fluence Evaluation for Cycles 1-5," EPRI Technical Report 1008065, July 2003.

Ongoing 2003 BWRVIP Major Tasks

- Crack Growth Summary Report
- Crack Growth and Fracture Toughness in High Fluence BWR Materials
- Continue Development of BWR Fluence Calculation Methodology
- Benchmark of Fluence Models and Weldability of Internals
- Update DLL Code (Limit Load and Fracture Mechanics for Core Shroud Evaluations)
- Evaluation of Cracking in Jet Pump Beams
- Continue Report Revisions with NRC Safety Evaluations Incorporated (Includes NRC Acceptance for Current and License Renewal Terms)
- Integrated Surveillance Program (ISP) – RPV Embrittlement
- Continue NDE Technique Development and Maintenance
- Post-NMCA Hot Cell Examination of 3-cycle Duane Arnold Fuel
- NMCA Experience Report and Application Guidelines (Revisions)
- Determination of Noble Metal Loading on Internal BWR Surfaces

Approved 2004 BWRVIP Major Tasks

- Crack Growth and Fracture Toughness in High Fluence BWR Materials
- Continue Development of BWR Fluence Calculation Methodology
- Jet Pump Degradation Management Guideline
- Continue Report Revisions with NRC Safety Evaluations Incorporated (Includes NRC Acceptance for Current and License Renewal Terms)
- Integrated Surveillance Program (ISP) – RPV Embrittlement
- Inspection Evaluations for Non-Safety RPV Internal Components
- Continue NDE Technique Development and Maintenance
- Sampling of Shroud Head Bolts
- ASME Code Case for CRD Roll Repair
- Qualification and Demonstration of Zirconia Coating Technology to Mitigate IGSCC
- Mitigation of Crack Growth in Plants with Noble Metal Chemical Application (Crack Flanking)
- Radiolysis/ECP Code Improvement, Validation and Revision

Executive Committee Direction for BWRVIP

- Starting in 2003, initiate BWRVIP-II to:
  - Serve as the focal point for material-related issues for BWR plants that affect pressure vessels, piping, RPV internals (including fluence) and water chemistry for current and license renewal terms
    - Maintain and update BWRVIP products
    - Serve as the lead for the U. S. industry on BWR material-related issues – interface with USNRC, INPO, etc.
    - Serve as the U. S. repository for information on material-related issues for the worldwide fleet of BWRs
  - Coordinate BWR material-related activities with relevant PWR activities
  - Support NEI Initiative on Management of Materials Issues

BWRVIP Executive Oversight Committee Assignments

Carl Terry
Constellation Nuclear - NMP
Chairman

Bill Eaton
Entergy Operations
Vice Chairman

Assessment	Mitigation	Integration
Jim Meister **Exelon** **Executive Chair**	Lewis Sumner Southern Nuclear Executive Chair	Al Wrape PPL Executive Chair
George Inch **Constellation – NMP** **Tech Chair**	**Jeff Goldstein** **Entergy Nuc. NE** **Tech Chair**	**Robin Dyle** **Southern Nuclear** **Tech Chair**
Bob Carter EPRI Task Mgr	Raj Pathania EPRI Task Mgr	Tom Mulford EPRI Task Mgr

BWRVIP Liaison to EPRI Nuclear Power Council – Dale Atkinson, Energy Northwest

High Priority BWRVIP Issues for NRC Review

- NDE Uncertainty
- RAMA Fluence Methodology (BWRVIP-114, -115, -117)
- Hydrogen Water Chemistry/Noble Metal Chemical Application Issues (BWRVIP-62)
- Crack Growth and Fracture Toughness in Irradiated Stainless Steels (BWRVIP-99, -100)
- Revised GL 88-01 Piping Inspection Schedules (BWRVIP-75)
- Revised Shroud Support Inspection Guidelines (BWRVIP-104)

FY2004 NRC Budget/Resources for BWRVIP Reviews

- Informal discussions indicate FY2004 NRC resources for BWRVIP reviews may be reduced from FY2003 levels
  - Contractor support (e.g., ANL) may be reduced
  - NRC staff resources may be reallocated
- Continued timely, effective interface between BWRVIP and the NRC beneficial to both organizations. Investments in resources to date should be protected so that momentum is not lost
- BWRVIP open to exploring ways to ensure NRC resources remain available