

**North Anna Power Station Unit 2
Reactor Pressure Vessel Head Replacement Project
Nuclear Regulatory Commission Meeting
October 29, 2002
Innsbrook Technical Center**



Enclosure 1

Opening Remarks

- Dominion Welcome
- Introduction of Attendees
- NRC Remarks



Agenda

- Dominion's overview of the reactor vessel head replacement project for North Anna, Unit 2
- Dominion's plan and schedule for reactor vessel head design specification reconciliation
- Dominion - NRC Communications
- NRC oversight of reactor pressure vessel head replacement
- Closing Remarks



Reactor Pressure Vessel (RPV) Head Replacement

Major Activities

- Containment Access Repair / Replacement Activities
 - Create Containment Access Opening
 - Remove / Restore Liner Section
 - Restore Reinforcing Steel and Concrete
 - Perform Post Restoration Testing
- RPV Head Replacement Activities
 - Remove Reusable Components from Original RPV Head
 - Move Original RPV Head from Containment
 - Move Replacement RPV Head into Containment
 - Restore Reusable Components on Replacement RPV Head
 - Set RPV Head on Vessel
 - Perform Post Replacement Testing and Start-up Activities



RPV Head Design Reconciliation

Design History

- The French and North Anna reactor pressure vessel (RPV) heads are of a similar design.
- The North Anna RPV head was constructed to a North Anna Design Specification.
- The French RPV head was constructed to an Electricité de France (EDF) Design Specification and the French Construction Code (RCC-M).
- Framatome currently fabricates to both ASME [N-Stamp Holder] and RCC-M Codes.
- Replacement RPV head provides industry standard solution to Primary Water Stress Corrosion Cracking (PWSCC) of penetrations.



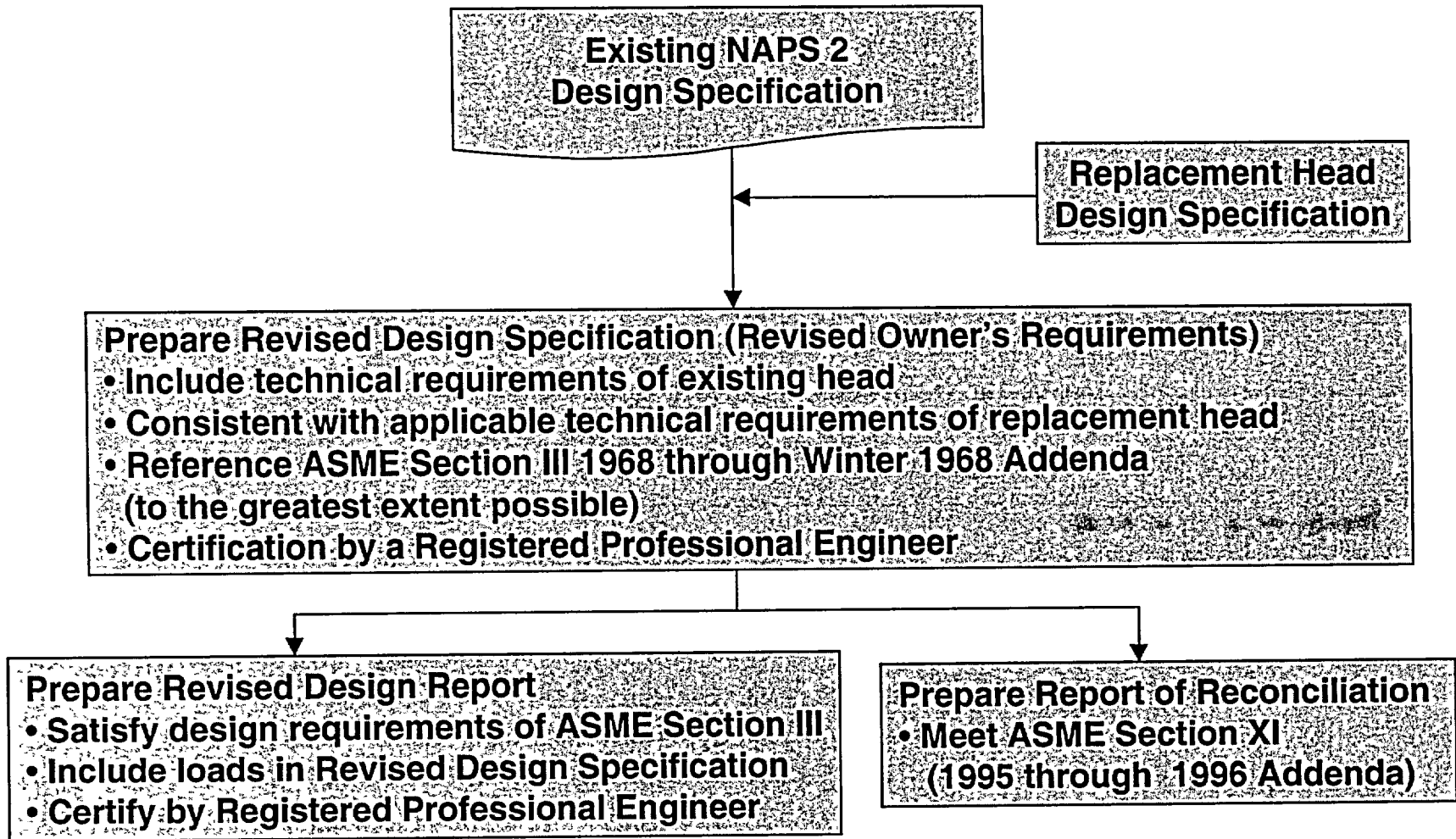
RPV Head Design Reconciliation

Reconciliation Plan

- Safety-related design activities will be performed in accordance with the requirements of 10CFR50 Appendix B and 10CFR21.
- ASME Section XI Repair/Replacement Program will be satisfied:
 - A revised Design Specification will be prepared.
 - A Report of Reconciliation will be prepared.



RPV Head Design Specification



RPV Head Design Reconciliation

ASME Section XI
Repair/Replacement
Activities

ASME Section XI activities [IWA- 4221(a)]:

An item used for repair/replacement activities must meet the Owner's Requirements and the applicable Construction Code
(There is no applicable Construction Code for the NAPS Unit 2 RPV head.)

ASME Section XI IWA- 4221(c) allows use of revised Owner's Requirements provided the technical requirements are reconciled in accordance with Section XI IWA- 4222.

Prepare Report of Reconciliation

- Review design and fabrication details of replacement head.
- Document the equivalency and the evaluation and justification of differences.



Dominion

RPV Head Design Reconciliation

Evaluation of Penetration Housing to Adapter Welds

- The original Design Specification (Owner's Requirements) did not address friction welding. Therefore, a rigorous technical evaluation will be performed to verify the structural integrity of the friction welds. The following areas will be addressed:
 - Manufacturer's friction welding procedure and performance qualification testing. Included are destructive testing requirements and manufacturer's records.
 - Effectiveness of the manufacturer's welding process controls
 - Effectiveness of the manufacturer's NDE techniques and performance demonstrations
 - Application of the manufacturer's QA Program to control the friction welding process
 - EDF operating experience with bimetallic friction-welded joints
 - Belgian experience with friction weld reconciliation for equivalence between RCCM and ASME Code requirements
- Evaluation will be documented in the Report of Reconciliation



RPV Head Design Reconciliation

- Implementation will be controlled by the existing Dominion Design and Quality Assurance Programs.
- Dominion will evaluate manufacturer's QA Program to 10CFR50, Appendix B.
- Dominion will audit the implementation of the manufacturer's QA Program.



RPV Head Design Reconciliation

We anticipate completion of reconciliation activities by late December 2002 or early January 2003 to support a January 2003 restart.



Dominion - NRC Communications

- Open lines of communications will be maintained.
- Replacement activities schedules will be identified to permit NRC oversight.
- Engineering documents will be available for regional or headquarters review and inspection.



NRC Oversight of RPV Head Replacement



NRC's Oversight of the Reactor Vessel Head Replacement Project



Enclosure 2

NRC's Oversight (Continued)

- The purpose of the staff's activities are to oversee the licensee's plans to replace the North Anna, Unit 2 Reactor Vessel Head with a vessel head manufactured to the French RCC-M standard.



NRC's Oversight (Continued)

- Scope of Staff Review
 - Independent review of design, quality assurance, and licensing basis information for the currently installed vessel head.

 - Independent review of design, fabrication, quality records, and French regulatory oversight of the construction of the replacement vessel head.
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NRC's Oversight (Continued)

- Scope of Staff Review (continued)
 - Review of licensee's modification package, new design specifications, reconciliation report, and ASME data package.
 - Oversight of onsite replacement activities.
 - Review of post replacement maintenance and testing plans.
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NORTH ANNA UNIT 2 HEAD REPLACEMENT

PURPOSE: The purpose of the staff's activities are to oversee the licensee's plans to replace the North Anna Unit 2 Reactor Vessel Head with a head manufactured to the French RCC-M standard.

LICENSEE'S PROPOSAL: The licensee proposed to replace the head as a design modification, using the reconciliation provisions of ASME Section XI. Design differences would be addressed under the licensee's screening process for 10 CFR 50.59 determinations. The French head (EDF RPVH no. 28) was built to the RCC-M, 1993 edition with the 1st, 2nd, and 3rd addendum.

SCOPE OF STAFF REVIEW ACTIVITIES

1. Independent review of design, quality assurance, and licensing basis information for the current head (NRR Lead).
2. Independent review of design, fabrication, quality records, and French regulatory oversight of the construction of the replacement head (NRR Lead).
3. Review of licensee's modification package, new design specifications, reconciliation report, and ASME data package (NRR Lead).
4. Oversight of onsite replacement activities (Region II Lead).
5. Review of post replacement maintenance and testing plans (Region II Lead).

TEAM COMPOSITION

Team Leader: John Nakoski
Lead Inspector: Steve Vias (Region II)*
Inspector: Billy Crowley (Region II) - depending on availability (rehired annuitant)
Project Manager: Stephen Monarque
Technical Staff: Keith Wichman (ASME Sections III & XI) - EMCB (rehired annuitant)
Technical Staff: Tom McLellan (ASME Section XI) - EMCB
Technical Staff: Ken Chang (ASME Sections III & XI) - EMEB
Technical Staff: Rich McIntyre (QA) - IEHB

*The Region II Lead Inspector may change based on regional priorities.