

JCN-N6783

Office of Nuclear Regulatory Research

Properties of CRDM Welds

Brady Hanson  
(509) 375-5051

Period of Performance: May 3, 2010–July 31, 2012  
Reporting Period: May 2012

**OBJECTIVE**

The objective of this project is to conduct nondestructive ultrasonic testing (UT), and an assessment of the leak path on Nozzle 63 from the North Anna Unit-2 reactor pressure vessel head. The assessment of the leak path will be conducted using instrumentation equivalent to or better than that used by industry. The results of the nondestructive examination will be compared to a previous assessment. A destructive analysis will be conducted to allow a visual assessment of the leak path. To the extent possible, the destructive analysis will be conducted such that materials from the nozzle and the J-groove weld that will be retained for later testing.

---

**TECHNICAL PROGRESS**

**Task 1: Decontaminate the Nozzle and Prepare Laboratory for NDE**

Task 1 is complete.

**Task 2: Perform Ultrasonic Measurements of the Leakage Path**

Task 2 is complete.

**Task 3: Perform Destructive Evaluation of Leakage Path**

Task 3 is complete.

**Task 4: Write NUREG/CR**

PNNL received comments on the DRAFT NUREG/CR from the NRC on May 16, 2012.

**Task 5: Waste Disposal and Cleanup**

Task 5 is complete.

**Task 6: Project Management and Meetings**

The planned telecom with NRC, industry, and PNNL has been postponed and PNNL will await direction from NRC.

C/28

**MEETINGS AND TRIPS**

The paper, "Comparison of an Ultrasonic Phased Array Evaluation with Destructive Analysis of a Documented Leak Path in a Nozzle Removed from Service," was presented at the 9<sup>th</sup> International Conference on Nondestructive Evaluation in Relation to Structural Integrity for Nuclear and Pressurized Components. The conference was held in Bellevue, Washington, May 21-24.

**PROBLEM AREAS**

None.

**SCHEDULE OF MILESTONES AND DELIVERABLES**

Receive and address NRC comments	May 16, 2012
Submit final NUREG/CR report	by July 30, 2012
Project closeout	July 31, 2012

**PLANS FOR THE NEXT REPORTING PERIOD**

**Task 1: Decontaminate the Nozzle and Prepare Laboratory for NDE**

Complete.

**Task 2: Perform Ultrasonic Measurements of the Leakage Path**

Complete.

**Task 3: Perform Destructive Evaluation of Leakage Path Nozzle 63 Optional Work**

Complete.

**Task 4: Write NUREG/CR**

Address comments on the DRAFT NUREG/CR.

**Task 5: Waste Disposal and Cleanup**

Complete.

**Task 6: Project Management and Meetings**

NRC will inform PNNL if and when support is needed for a meeting with EPRI to discuss the results of this project. Support NRC as necessary. Once the report is completed, the project will be closed out.

(b)(4)

**VARIANCE EXPLANATION**

None

**EQUIPMENT**

None.

**QUALITY ASSURANCE**

The Quality Assurance requirements for this project are provided in the Laboratory's Standards Based Management System (SBMS). The SBMS allows for a graded QA approach to meet the requirements of individual projects. No specific Quality Assurance requirements have been specified by the NRC for this project.

(b)(4)

(b)(4)