From: Douglas Pickett > NRR
To: Bill Bateman
Date: 7/18/02 1:03PM
Subject: Fwd. Sample Plan Phase 3 - Revision dated July 15

Bill -

Attached is the licensee's revised sample plan as discussed with the licensee on Monday, July 15. Please note the licensee is requesting approval to begin destructive examinations

Doug

CC: Anthony Mendiola, Dwight Snowberger; Keith Wichman; Stephanie Coffin; Steven Long; William Cullen

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From: <mkleisure@firstenergycorp com>
To: <dvp1@nrc.gov>
Date: 7/18/02 12:50PM
Subject: Sample Plan Phase 3 - Revision dated July 15

Doug-
Attached is the Phase 3 Sample Plan, revised to incorporate the comments from the July 15 conference call Please let me know when we have your permission to proceed
(See attached file Sample Phase 3 07-15-02 doc)

Mike Leisure
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Davis-Besse Reactor Head Sample Characterization

Phase 3

The Phase 3 Sample Plan detailed herein reflects the discussions held at the June 17, 2002 meeting in Lynchburg, Virginia between the NRC, FENOC, Framatome ANP, and BWXT, and the telephone conference between NRC, FENOC and Framatome ANP on July 15, 2002.

Sample Analyses

Analyses are proposed to be performed on the following Sample IDs:

Sample ID
Nozzle 2
Nozzle 3
Nozzle 3 Corrosion Area

The task sequences for each individual piece are listed below in a logical fashion, however, tasks may be performed in parallel provided that the designated HOLD POINTS are complied with. With the exception of the tests bounded by the HOLD POINTS, no tasks require additional NRC or FENOC personnel concurrence to proceed.

1. Nozzle 2

(a) Perform a visual inspection and document with photographs.

(b) If necessary, decontaminate the nozzle and flange; collect loose corrosion products in a traceable plastic bag(s).

(c) Perform a visual inspection of the nozzle and document with macro photographs.

2. Nozzle 3

(a) Perform a visual inspection and document with photographs.

(b) If necessary, decontaminate the nozzle and flange; collect loose corrosion products in a traceable plastic bag(s).

(c) Make two transverse cuts through the nozzle at the 1" and 3.5" distances from the bottom of the nozzle (near the J-groove weld end). The remainder of the nozzle is to be stored in the original shipping container. Additional work on the two rings, hereinafter referred to (by length) as the 1" ring and 2.5" ring, is described below.

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(d) Document the 2.5" ring with photographs.

NOTE

The shipping of the 2.5" ring to ANL releases it from the Davis-Besse Quarantine List.

(e) Ship the 2.5" ring to Argonne National Laboratory (ANL) for additional testing (shipping information to be provided by NRC personnel). The ANL testing is not part of the work scope described herein.

(f) Perform fluorescent penetrant testing (PT) on the 1" ring.

HOLD POINT

Proceed with the following step only if no cracking indication is found. If cracking indication is found, STOP, obtain FENOC and NRC personnel concurrence for additional sectioning and testing plan for stereovisual inspections, Scanning Electron Microscopy and Energy Dispersive Spectroscopy (SEM/EDS), and metallography.

(g) Section the 1" ring and prepare a metallographic specimen containing the full wall thickness. Etch the specimen and take micrographs of representative microstructures. Perform microhardness traverse across the wall thickness.

3. Nozzle 3 Corrosion Area

(a) The first mold of the cavity was successfully performed with FENOC and NRC personnel concurrence on June 14, 2002.

(b) The second mold of cavity (intended as a backup) was successfully performed with FENOC and NRC concurrence on June 27, 2002.

(c) A mold of the stainless cladding from the underside (RCS side) of the cavity was successfully performed with FENOC and NRC personnel concurrence on June 27, 2002.

(d) Make cuts #1, #2, and #3 as shown on Figure 1. All three cuts will be about 0.5"

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minimum outside the cavity walls. The resulting four pieces will be designated as Block A, B, C, and D. Block A contains the cavity; Blocks B and C are the "moon" pieces from cuts #1 and #2; Block D is from cut #3 and contains the CRDM Nozzle 11 bore and the remaining J-groove weld.

(e) Perform fluorescent PT (on the #1, #2, and #3 cutting faces on the side of Blocks B, C, and D. The objective is to look for de-bonding between the stainless steel cladding and the low alloy steel of the RV head.

(f) Perform microhardness tests on one of the "moon" pieces (Block B or C). The microhardness tests are to traverse across the stainless steel cladding thickness, into the low alloy steel heat affected zone (HAZ), and the unaffected base metal in a line perpendicular to the stainless steel cladding.

NOTE

The shipping of the portion of Block D to ANL releases it from the Davis-Besse Quarantine List.

(g) Make cut #4 approximately 0.5" above the J-groove weld on Block D (containing the CRDM Nozzle 11 bore). Ship the portion of Block D containing the J-groove weld to ANL for additional testing (shipping information to be provided by NRC personnel). The ANL testing is not part of the work scope described herein.

(h) Perform two tension tests on the stainless cladding removed from either "moon" piece (Block B or C). Remove both specimens from the same area, with one specimen being machined from the cladding near the carbon steel interface (top specimen), and the other specimen from the cladding near the surface in contact with RCS (bottom specimen). The cuts for both specimens shall be made perpendicular to the direction of travel of the cladding weld machine. Nominal specimen dimensions in reduced area are 0.080" x 0.200" and are approximately 1.5" to 2.0" long. Perform both tensile tests at 600 °F.

(i) Prepare the CRDM Nozzle 3 J-groove weld surface and perform fluorescent PT of all accessible surfaces of the J-groove weld for cracking.

(j) Make cut #5 on Block A (containing the cavity) at approximately 2" above and parallel to the stainless cladding. Perform thickness measurements of the exposed stainless steel cladding in a 0.5" grid pattern.

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HOLD POINT

Obtain FENOC and NRC personnel concurrence before proceeding to the following items. The cuts in Steps (k) and (l) will be numbered sequentially (such as Cuts #6 and #7) and illustrated in a sectioning plan for FENOC and NRC concurrence.

(k) Cut the upper portion of cavity in half by sectioning through the head in the Nozzle 3 bore to Nozzle 11 bore direction. Perform stereovisual inspections to determine locations for SEM/EDS and metallography samples.

(l) Cut the lower portion of the cavity (containing the exposed cladding) in half in the same manner as the previous step. Perform stereovisual inspections to determine locations for SEM/EDS, metallography and microhardness test samples.

Control of Samples

Currently, the three Sample IDs, i.e., CRDM Nozzle 2, CRDM Nozzle 3 and the Nozzle 3 Corrosion Area cutout (which includes the Nozzle 11 bore), are being stored at BWXT.

Traceability of the Sample IDs, and portions thereof, will be maintained. Each sample will be identified either by a sample identification on the sample itself or a sample identification on a container or a plastic bag. Only one sample will be allowed in a container or in a plastic bag. The inventory of the samples and the specific location of each sample will be documented in a project logbook maintained by the vendor test facility.

HOLD POINT

Prior to proceeding with the disposal of samples, the current status will be discussed with the NRC staff.

No samples or materials will be disposed of without FENOC authorization. Samples will be retained until released from quarantine.

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Schedule

Upon request, reasonable advance notice will be provided to allow NRC or FENOC personnel to have the opportunity to witness the actual testing (site-specific radiological worker training may be required).

A final report will be provided to FENOC approximately four weeks following completion of the laboratory work. This report will provide a detailed description of the material samples , a detailed description of the analytical techniques utilized, and the results.

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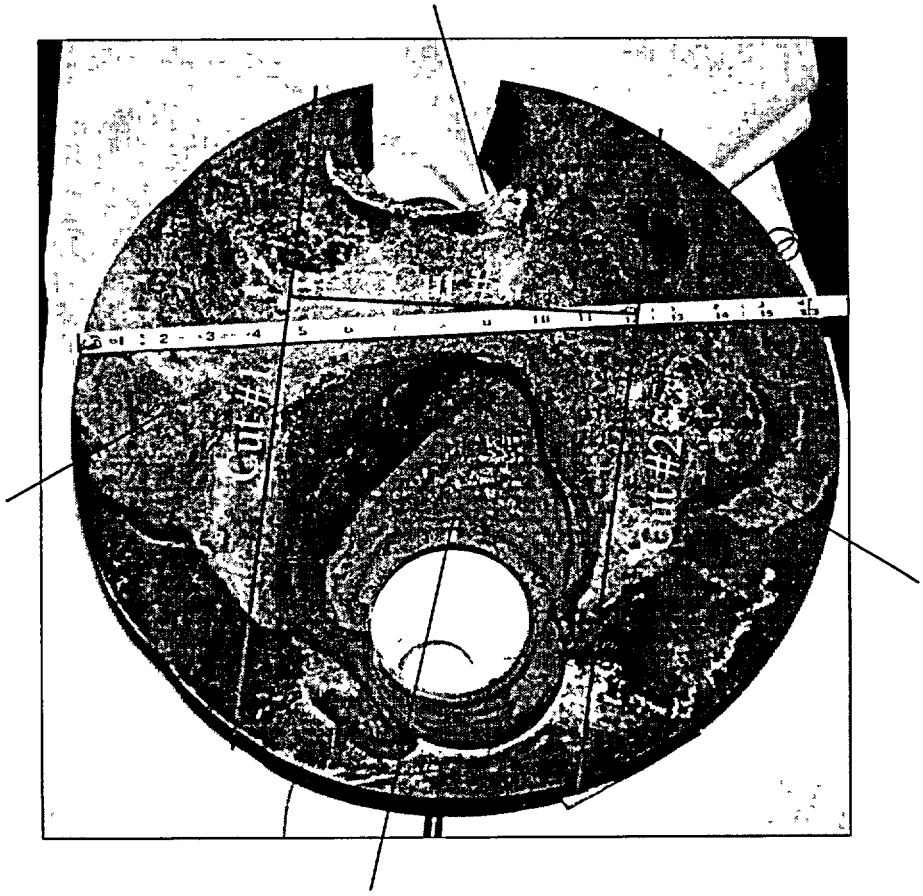

Figure 1. Section Plan for the Nozzle 3 Corrosion Area Cutout